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Original Contributions.

ARTICLE XX.

THE FUNCTIONS AND DISORDERS OF THE LIVER AND THEIR MANAGEMENT IN ACCORDANCE WITH THE RESULTS OF MODERN DISCOVERY. Being the new chapter about to appear in the forthcoming second edition of "Loss of Weight, Blood-Spitting and Lung Disease." By HORACE DOBELL, M. D., of London, Consulting Physician, late Senior Physician to the Royal Hospital for Diseases of the Chest, London.

Opinions of the Ancients Confirmed by Modern Discoverers—References to the Liver in other parts of this Work—Importance of the Liver in Loss of Weight, Blood-Spitting and Lung Disease considered under Six Heads: 1. Digestion and Assimilation of Hydrocarbons—2. Of Carbohydrates—3. Of Albuminoids—4. Disintegration of Nitrogenous Matter and Evolution of Heat—5. Retrograde Congestion—6. Fatty Enlargement.—Bird's Eye View of the Organism—The Venous System separated from the Arterial by the Lungs—The Portal System separated from the Lungs by the Liver—The Lacteal and Lymphatic Systems shut off from the Liver by the Thoracic Duct—The Systemic Venous System shut off from the Liver by the Vena Cava—Functions of the Liver—Intercceptor of Saccharine and Amylaceous Matter—Intercceptor of Oil—Disintegrator of Nitrogenous Matter and of Blood-Discs

and Center of Animal Heat—Constructor of Bile, Bernardin (Glycogen or Amyloid Matter) and Urea—Facilitator of Fat Absorption by Animal Membranes—Antiseptic and Aperient Properties of Bile.—Intermediate Osmotic Circulation and Absorption of Bile.—Power of the Liver to bear Overtax of its Functions without Disease.—Diabetes.—Explanation of Fatty Liver in Consumption.—Proper Treatment of the Functions and Disorders of the Liver by Diet, Hygiene and Medicine.—The Liver a powerful Ally or Dangerous Enemy in our War with Loss of Weight, Blood-Spitting and Lung Disease.

The practical sagacity of the ancient physicians and the common sense of humanity for ages kept up a widespread belief that the most conspicuous viscus in the body must play a somewhat proportionately conspicuous part in the organism.

Hence an endless variety of ills were attributed to derangements and diseases of the liver.

For many years these ideas were smiled at by those who thought themselves so much more enlightened than their predecessors as to have learnt that the liver was made for nothing but the secretion of bile, and that bile was nothing but a waste product of the body.

Recent scientific discovery, however, has turned the smile against the skeptics, amply confirming the impressions of our ancestors, and placing the liver on the very pinnacle of clinical, physiological and pathological importance.¹

In reading over my own book in its first edition, I am impressed with the feeling that it does not represent to the full extent the importance which those who are familiar with my daily practice well know that I attach to the liver, in connection with loss of weight, blood-spitting and lung disease. I have therefore added this supplementary chapter to supply the deficiency.

At pp. 215, 217, 249, I have spoken of the importance of attending to the action of the liver, and at p. 152 I have referred to some laborious investigations which I made so long ago as 1853 with reference to fatty liver in consumption. But in all

1. Among modern laborers in this field the following may be specially mentioned: Kiernan, Budd, Rokitanski, Frerichs (whose work has been popularized in English by the valuable translations and *rechauffées* of Murchison), Bernard (whose discoveries have been subjected to important correction by Pavy), Wickham Legg, Parkes, Habershon, Harley, Rolleston, Rutherford, Warburton Begbie, Gilbert, Morchhead, Waring, Wilks, Gamgee, Bruntton, Grünwald, Krueger, Schiff, Röhrig, Masse, Boeker, Radziejewski, Kuhne, Recklinghausen, Klein, Staedeler, Neukomm, Eulenbergh, Brown-Séquard, Ronis.

these places the liver is only referred to in its subsidiary connection with the general argument regarding the action of the pancreas. In this chapter I shall reverse the order and give precedence to the liver.

The importance of the liver in connection with our present subject may be considered under six principal headings:

1. Its connection with digestion and assimilation of the fat elements of food (hydro-carbons).

2. Its connection with the digestion and assimilation of the saccharine and amylaceous elements of food (carbo-hydrates).

3. Its connection with the digestion and assimilation of the nitrogenous elements of food (albuminoids).

4. Its connection with the disintegration of nitrogenous matter.

5. Its liability to congestion when the pulmonary circulation is obstructed in front, with consequent disturbance of its functions; this retrograde congestion and disturbance of functions extending in due course to all the organs which contribute to the portal circulation.

6. The apparently anomalous and puzzling fact that fatty enlargement of the liver is especially apt to occur when all the rest of the organism is wasted by consumption.

This remarkable combination of circumstances seems to invest the liver with so much interest in relation to loss of weight, blood-spitting and lung disease, that we are astonished to find how little is said about it in any of the existing works on consumption.

If we take a bird's-eye view of the organism—with its general plan of a venous system separated inviolably from an arterial system by the lungs, and a great food-supplying apparatus for the generation of blood and tissues, and for the evolution of heat and other modes of motion—the liver strikingly attracts our notice, as a huge machine placed as peremptorily between the food supply and the pulmonary circulation as are the lungs between the veins and the arteries, intercepting every particle of new food that can be absorbed by veins. So jealously is this shut off from the lungs that the blood of the hepatic artery, after ministering to the nutrition of the liver itself, and even that of the vaso-vasorum of the hepatic veins, is returned to the portal vein before it is allowed to reach the lungs.

We cannot for a moment doubt, when we regard this impera-

tive arrangement for interception, that it has some most vital purpose.

The next thing that most forcibly strikes us in this bird's-eye view is a similarly peremptory arrangement by which everything absorbable by lacteals and lymphatics is scrupulously kept out of the way of the liver, and, after passing through a system of glands, is conveyed by the thoracic duct directly to the lungs.

And again we are struck by the definite arrangement by which all the venous blood of the body, other than that charged with new food, is, like the contents of the thoracic duct, kept out of reach of the liver and conveyed directly to the lungs.

We find that, by these mechanical arrangements, all worn-out tissues, all fats not absorbed by the portal system of veins, all the products of interstitial nutrition, are submitted directly to the pulmonary circulation, but that all the other elements of nutrition *must be submitted to the operations of the liver* before they are fit for use in the organism.

What, then, are the effects of these important operations?

1. First and foremost in every way is the conversion of the carbo-hydrates of the food, and probably some of the albuminoids, into a material called Bernardin,² amyloid matter, or glycogen. It matters not by which of these names it is called, but I prefer the first, so that it is clearly understood—that from the time the food is converted into this body it becomes utilizable as a source of force and nutrition, and that—so long as the functions of the liver are normal, and the quantity of carbo-hydrate food introduced is not in excess of the maximum capacity of these functions—only a trace of sugar *per se* escapes conversion into Bernardin, and is allowed to reach the pulmonary blood, any excess of this being rapidly excreted by the kidneys, constituting diabetes.

2. The second effect is the interception of so much of the fats as are absorbed by the portal system of veins (almost entirely oleine) for the manufacture of bile, only the surplus over and above what is employed for this purpose being allowed to reach the lungs by the hepatic veins. All the solid fats, and the bulk of all fats, are saved from the liver—being emulsionized by the pancreatic secretion, and conveyed to the lungs by the lacteal route.

2. After Prof. Bernard, the discoverer of this material [at the suggestion of Dr. Pavy.]

3. The albuminated materials of food absorbable by the portal system of veins are disintegrated in the liver, leading to the formation of urea and other nitrogenous products, afterwards excreted by the kidneys. In the performance of this and other chemical processes, the liver becomes a great center of animal heat, the temperature of the liver reaching 104° to 106° F., when all the rest of the body is at 98° and 99° . It is important to remember that the blood of the portal vein when it enters the liver contains the blood from the spleen, and that probably in connection with this, is the fact that the worn-out red blood discs are cast into the liver—forming part of that copious supply of nitrogenous matter poured into the liver, the disintegration of which has already been referred to as a source of animal heat, and in the course of which blood pigment is probably converted into bile pigment, and bile pigment into urinary pigment. It is not certain, however, that bile pigment and the biliary acids are not secreted from the blood of the hepatic artery. But, as I have already mentioned, the venous return of the hepatic artery is into the portal circulation.

4. We come next to the special secretion of the liver, that rich, complex, abundant and important fluid, *the bile*, poured out at the rate of about two pints every twenty-four hours, not less than thirty-nine fortieths of which is returned to the blood during its passage through the biliary and intestinal tract—in the course of that great and important osmotic circulation constantly going on between the fluid contents of the bowel and the blood. The amount of fluid poured into the intestines and reabsorbed in twenty-four hours, says Prof. Parkes, “is almost incredible, and constitutes of itself a secondary or intermediate circulation never dreamed of by Harvey. The amount of gastric juice alone passing into the stomach and then reabsorbed amounted, in a case lately examined, * * * to nearly twenty-three imperial pints (if we put it at twelve we shall certainly be within the mark). The pancreas * * * furnishes twelve pints and a half in twenty-four hours, while the salivary glands pour out at least three pints * * * the amount of the bile is probably over two pints. * * * The amount given out by the intestinal mucous membrane cannot be guessed at, but must be enormous. Altogether, the quantity of fluid effused into the alimentary canal in twenty-four hours amounts to much more than the whole amount of blood in the body. * * * The effect of this con-

tinnal outflowing is supposed to be to aid metamorphosis; the same substance, more or less changed, seems to be thrown out and reabsorbed until it is either adapted for the repair of tissue or has become effete."

As regards that small proportion of the bile (not more than one-fortieth of the whole) which is excreted through the intestines, it acts as a potent antiseptic upon the contents of the bowel, stimulates peristaltic action, and in this way, as well as by giving a proper consistence to the feces, assists in their regular discharge, and it rids the system of those waste products of blood and tissue which can no longer yield up nutriment or force to the organism. It is a striking fact that all the digestive fluids, from the saliva downwards, promote decomposition until we come to the bile, which, for the first time, reverses the action, and interposes an antiseptic, thus maintaining the *status quo* of the proceeds of digestion until they are absorbed or cast off as waste, and staying the evolution of gases in the passage of this waste out of the body.

In diseases attended with copious expectoration a special importance attaches to the antiseptic properties of bile; for it is inevitable that a considerable portion, in some cases the whole, of the matter intended for expectoration will pass from the respiratory down the alimentary tract, where it will decompose and act as a septic poison unless this is prevented by some antiseptic agent. I have laid so much stress in other parts of this work upon the vital importance of antiseptic treatment in tuberculous blood-poisoning or tuberculæmia, that I need not do more in this place than call attention to this as another reason for promoting a proper flow of normal bile.

It is—that large proportion of the bile (about thirty-nine fortieths) which is reabsorbed—with which we are more especially concerned in considering the question of loss of weight. We cannot fail to be struck with the consideration of how largely the nutrition of the body must be interfered with if, through faulty action of the liver, this enormous daily contribution to the new formative materials of the body is either cut off or ill elaborated, or if, after being duly elaborated and poured into the intestines, it is cast out of the body instead of being absorbed. (See p. 152.)

But in addition to the direct supply of nutriment by the action of the liver, the bile has an indirect influence on nutrition equally important. Not only is its passage into the intestines in some

way essential to that formation of Bernardin (amyloid substance or glycogen) out of the carbo-hydrates, about which I have already spoken, and instrumental in facilitating the digestion of the albuminoid constituents of food; but experiments have shown that the presence of a weak solution of soda or potass in the pores of an animal membrane materially assists the passage through it of emulsionized oil and fat; and we find in the alkaline bile diluted with the other digestive fluids, exactly what is wanted to saturate in this manner the lining membrane of the alimentary canal, and thus to facilitate the important process of absorption of fat. There can be no longer any doubt that one of the great purposes of the liver is to assist by these means in the supply of fats to the blood by the lacteal route.

It will be recollected that in the course of this work I have again and again pointed out the importance, in all cases of wasting, and especially in tuberculosis, of supplying an abundance of carbo-hydrates in the diet, partly as a means of contributing to the formation of fat from this source, but still more with a view to supplying materials for the evolution of animal heat and other modes of motion in the form of carbo-hydrates, and thus reserving all the hydro-carbons possible for histogenesis and other purposes for which fat, and fat only, can suffice. (See pp. 154, 158, 217, 222, 223, 229). And now that I have shown that the liver is the organ principally concerned in converting these carbo-hydrates into Bernardin, and thus fitting them for utilization in the organism, we shall again be impressed with the necessity of securing a proper performance of this essential function.

We come now to consider more minutely the relation of the liver to the fat absorbed from the food into the *portal venous system*, and then its relation to fat absorbed during interstitial nutrition into the *systemic venous system* so intimately connected with those wasting processes attended with loss of weight. We shall then be in a position to understand "the apparently anomalous and puzzling fact that fatty enlargement of the liver is especially apt to occur when all the rest of the organism is wasted by consumption" (p. 517, par. 7).

We have seen that the liver must be regarded as a great intercepter of sugar and of oil from the lungs, and that when it is in the full possession of its functions, only a trace of sugar *per se* or of oil *per se* reaches the hepatic vein unless it is introduced into the portal system in greater quantity or at a greater rate

than the maximum normal functions of the liver can manage to deal with; that thus the presence of either sugar or oil (*per se*) in any quantity in the hepatic vein must be regarded in the *light of an overflow*, indicating that the functions of the liver are either defective or overtaxed.

Now, with regard to overtaxing the liver with oil, which is the part of the subject which concerns us at present, experiment and investigation show that a large margin for variation has been allowed within the bounds of health. No harm to the system results from an overflow of oil from the liver into the pulmonary blood, for it only augments that much larger quantity purposely conducted there directly by the lacteal route, although there is this important difference between the fat overflowing from the liver and that conducted by the thoracic duct, that *the former has not been emulsified by the pancreatic fluid or elaborated by the mesenteric glands*. Still it does not appear to do any harm that a certain amount of oil should in this way overflow from the liver into the lungs, but on the contrary, as I have pointed out more than once in this book, and especially at p. 221, it is in this way that under the circumstances of impending danger, when tuberculosis is imminent through the stoppage of fat by the lacteal route, "in this emergency, in the hurry of this moment *cod liver oil* is such a Godsend to the patient. It is the kind of fat that can be hurried most rapidly into the pulmonary circulation; it is the fluid oleinous kind of fat that can pass by the portal instead of by the lacteal route." Yet what we have to consider in this place is that it does so in the character of an overflow at the expense of overtaxed functions.

As a large margin is allowed within the bounds of health for this overflow of unpancreatized oil into the lungs, so also is there a large margin allowed within the bounds of health for the *oil intercepting* function of the liver. Although it is most probable that, under normal conditions, the only object with which fat enters the portal circulation is as a contribution to the biliary secretion, yet it also appears probable that provision has been made within the bounds of health for enabling the liver to become a channel, in the manner I have indicated, by which oil may be temporarily supplied to the pulmonary blood, and to bear this overtax and overflow without permanent disease being produced in the organ. As a matter of fact, it is found that, under temporary overtax, a fatty condition of liver may occur, *such as*

morbid anatomists would recognize as disease, and yet the organ resume a perfectly healthy condition when relieved of this overtax of its functions.

But this power of restoration depends upon the duration and amount of the overtax, and is lost in proportion as the morbid condition is prolonged or excessive. It is this combination of circumstances which has been so cruelly and loathsomely taken advantage of for the artificial production of fatty liver in the Strasburg geese for the sake of manufacturing "*pâté de foie gras*."

In the normal state the oil which enters the liver with the portal blood is deposited in the hepatic cells, whence it is absorbed for the formation of bile; but in the abnormal state, produced by prolonged or excessive overtax, the accumulation of oil in the cells becomes so great that it compresses or excludes their other contents, thus stopping their secreting function, obstructing the portal circulation, and leading to the well-known consequence of portal congestion—loss of appetite, depraved or arrested digestion and assimilation, gastro-intestinal catarrh, hemorrhoidal affections, etc.

It is in this way that troubles arise from the incautious use of cod liver oil, especially when lacteal absorption is at a standstill. I pointed this out at p. 223. When speaking of the value of cod liver oil, I said, "As a temporary substitute for natural fats introduced by the natural route, it answers admirably, but sooner or later, in some cases very soon indeed, the portal system becomes choked, and refuses to absorb more oil, the oil disagrees with the stomach, it rises, it spoils the appetite, and thus not only ceases to do good, but does positive harm by preventing the patient from taking as much food as the stomach might otherwise call for and digest;" and at p. 217 I said, "The stomach has often suffered by an attempt to supplement the deficiencies of the small intestines, by digesting an undue amount of albuminoid material; and, by the forced absorption of fluid fats, the portal system has been overloaded and the condition of the liver deranged. Hence it commonly happens that, when cases of early consumption first come under our treatment, all this has to be set right before proper digestion and absorption would be possible, even if the pancreas could be made to resume its functions at once." And I added at p. 249, "Our treatment of consumption only becomes curative in proportion as it includes the means

for restoring the healthy functions of the stomach, liver and pancreas.

We cannot doubt then, after what we have seen, that although the liver route may be resorted to in an emergency for the supply of fat to the pulmonary blood *it cannot be permanently depended upon*, and that in proportion as we force on this overtax of the organ, we entail secondary abnormal conditions which more than counterbalance any good we can obtain.

But still we have not fully demonstrated or explained how it is that fatty liver so often progresses *pari passu* with the wasting of the rest of the body in consumption.

This question has long been a stumbling block both to physiologists and physicians, but I think that now we shall not find it difficult to answer. It, of course, involves a question which physiologists have not completely settled, viz., the mode and course by which the tissue fat is removed during the process of wasting—whether it is taken up by the lymphatics or by the veins. But there is no longer much room for doubt that the systemic veins are the principal channels by which fat is conveyed from the adipose tissue cells to the blood, while the lymphatics take up the worn-out tissue of the cells themselves. If the fat were all taken up by the lymphatics it would be conveyed directly to the lymphatic glands and thence to the lungs, and none of it could be waylaid by the liver. That which is absorbed by the blood-vessels is conveyed by the vena cava to the lungs, and thus the liver would still be eluded were it not that, when the supply of fat to the pulmonary blood by the natural lacteal route is cut off or materially diminished, the call upon the adipose tissues for fat is so urgent that the blood becomes surcharged with absorbed tissue fat so long as any can be obtained, and this fat, not having undergone pancreatization or elaboration in the glands, is utilized with difficulty, and therefore passes and re-passes through the organism in the general circulation before it is consumed. In this way the arterial blood of the whole system, and therefore that of all the chylipoietic organs, is surcharged with ill-elaborated fats, and as the venous return of all these organs is into the portal system, it is evident that in this way a constant overloading of fat is kept up in the liver cells while all the rest of the organism is losing it by interstitial absorption.

If this were the beginning of the series of morbid phenomena

in consumption, we might expect, from what we have learnt of the elastic character of the function of the liver as an interceptor of fat, that it might simply become a channel for the passage of absorbed fat to the lungs, as it is capable of becoming for a temporary purpose, when overtaxed with oil from the food (see page 523, par. 1); but we must remember that before emaciation begins the liver functions have been long taxed far beyond their healthy margin; the liver cells have already overflowed with oil and become choked with it, the portal circulation is blocked up, and the secretion of bile perverted or arrested.

But, still more, as the stage of emaciation arrives, in the majority of cases, the digestive organs have been overflowed with fatty and amylaceous foods in attempts to keep up nutrition, by which all the functions of the liver have been overstrained and spoilt; the powers of locomotion have become limited by illness, and, in the necessary protection against colds, the patient has been shut in warm, close rooms, and thus the difficulty of maintaining healthy digestion and assimilation, especially healthy liver action, have been still further complicated. Hence we cannot be surprised when Dr. Warburton Begbie says, as the result of his large experience, "the most fatty livers as well as the largest organs which have fallen under my observation have been in cases of chronic phthisis attended by extreme emaciation, in which cod liver oil, either in large or moderate amount, had been daily consumed for a period of many months." And when we consider that, in the words of Rokitsansky, "fatty liver is an essential constituent or pathognomonic combination of the tubercular dyscrasia, inasmuch as *it allies itself with tubercular affections of every kind*, with tubercle of the intestinal mucous membrane, of the bronchial glands, the serous membranes, the bones," we shall see that attempts so often made to explain the connection between fatty liver and phthisis, by referring it to the effect of interrupted oxygenation through the destruction of lung substance, are completely beside the question, even if they were not, *as they are*, easily controverted on other grounds. In fact, we are brought back to the important conclusion so often insisted upon in this work, and for which these phenomena add an argument, not previously made use of, viz., that the supply of fat by its natural lacteal route is cut off as the starting point

in the whole series of morbid changes in *constitutional* consumption.*

The fifth item in my list of circumstances which give importance to the liver in connection with loss of weight and lung disease (p. 517, par. 6) is "its liability to congestion when the pulmonary circulation is obstructed in front, with consequent disturbance of its functions; this retrograde congestion and disturbance of function extending in due course to all the organs which contribute to the portal circulation."

This congestion—which is only a part of that wider retrograde venous congestion which, through obstructing the vena cava, extends to the whole venous system—is too well known in connection with heart and lung diseases generally to need that I should do more than refer to it here, as a condition which creeps on coincidently with the advancing destruction of lung substance and consequent impediment to the onward current of blood from the right to the left heart, through the pulmonary circulation, leading to certain forms of blood-spitting and encroaching by slow but certain steps upon the already damaged capability of the digestive and assimilative organs to continue the functions essential to life.

Having now fully reviewed the position of the liver as a contingent in the general array of forces with which we have to contend in our battle with "loss of weight, blood-spitting and lung disease," let us consider what special weapons, or special applications of weapons, are necessary and obtainable for this part of our fight, and with what special aims we are to direct our attack with most promise of success.

If we restrict our view of the liver to its functions as an interceptor of fat for the secretion of bile (see p. 519, par. 1, p. 523, par. 1), and to its capability of permitting an overflow of oil into the pulmonary circulation, when this function is arrested or overtaxed, it may not unreasonably occur to us that, under circumstances in which fat is cut off from the organism at the lacteal route, it might be wise to encourage rather than to prevent an arrest or an overtax of the fat-destroying function of the liver, and so to allow the fat to reach the pulmonary blood by the he-

* It must be always borne in mind that this applies to constitutional consumption.

patic veins. And I have already pointed out (p. 523, par. 1) that, in a certain limited sense, this is a wise course to pursue.

But when we take a general instead of a restricted view of the subject, we find that the continuance of overtax or arrest of the oil-intercepting function of the liver, entails a perversion or arrest of all those other functions which we have found to be so essential to healthy nutrition, and it becomes clear that, even if we could secure a continuance of the passage of the fat to the lungs through the hepatic route, the gain would be more than counterbalanced by what is lost in the arrest of the other functions of the organ. But we have seen that arrest or overtax of the fat-intercepting functions will only for a limited time secure the overflow of oil to the lungs, and that, sooner or later, in most cases very soon, this perversion of function induces a general deadlock.

There can be no doubt, therefore, that we are theoretically right in following the course which practical experience has most unquestionably dictated and justified, viz., *to maintain by every means in our power the full integrity of all the functions of the liver.*

With this end in view we must cautiously avoid overtaxing the liver beyond a certain point, by carefully arranging the distribution of hydro-carbons, carbo-hydrates and albuminoids in the diet; and, so long as normal pancreatic action is defective, all food should be submitted to artificial pancreatization by the administration of pancreatine, which emulsionizes the fats, and thus assists their passage by the lacteal route instead of through the liver, and assists the conversion of the carbo-hydrates into Bernardin (see p. 518, par. 5). These objects may be still further promoted by submitting some portion of the food to pancreatization in the form of panereatic emulsion before it is taken into the stomach, and thus making sure that it is fitted at once for lacteal absorption; and, by the administration of peptodyn (pepsine, pancreatine and diastase), and of malt extracts, we may still further assist the liver in the conversion of the carbo-hydrates into Bernardin.

This treatment has the additional advantage that the fats which enter the portal system, as well as those absorbed by the lacteals, will have been submitted to the influence of the pancreatic juice.

Having thus eased and saved the defective functions of the liver by these dietetic manœuvres, we must attempt to stimulate the secreting powers when they flag, and to relieve that hepatic

congestion which hampers the proper action of the digestive organs. This is best done, without weakening the patient, by giving small repeated doses of podophyllin or of euonymin, and we must recollect that all our remedies should have a restorative rather than an exhaustive character.

The best way by far of administering podophyllin is to dissolve it in spirits of wine in the proportion of gr. j to the ounce, and combine it with essence of ginger in the proportion of ʒjss to an ounce; a teaspoonful of this given in a wineglassful of water every night, or every second or third night, will secure all the advantages of podophyllin without any chance of incurring those disadvantages which so often result when it is given in pills (see my note in the *British Medical Journal*, May 24th, 1879). Euonymin, which is a weak form of podophyllin, may be given in the same way, but the properties and strength of the drug as at present obtained are too variable to be relied upon.

One of our most valuable liver medicines is chloride of ammonium. It has proved invaluable in Indian practice in all those cases for which formerly large doses of mercury were thought essential. It is absolutely harmless, and in chest diseases has the additional advantage of being a valuable sedative to catarrhal mucous membranes at the same time that it relieves their congestion and facilitates expectoration. (See my work on Winter Cough, 3d edition, p. 193). Its action on the liver is especially indicated when congestion is the prominent condition, and it should be given in doses of from 5 to 20 grains, after food, combined either with acids or alkalies, according to the special indications of the case in this respect. Benzoate of soda is another hepatic stimulant of considerable value, and ipecacuanha has long been known to be another.

I have pointed out the important action of the liver on nitrogenous matter (see p. 519, par. 2), by which urea is formed and animal heat evolved; and as it is known that one influence of the introduction of chlorides into the organism is to promote the disintegration of albuminoids and materially to increase the excretion of urea by the kidneys, and as we know that the presence of an excess of uric acid in the urine is a sign of a defect in the oxygenation of the waste nitrogenous materials which ought to be disintegrated by the liver; when we find the urine overcharged with uric acid, our first care should be to restore or to

increase the disintegrating functions of the liver, and thus to remedy the defect at the fountain head.

In this way gouty and rheumatic affections, and their attendant dyspepsia, may be far more permanently treated by the administration of podophyllin, chloride of ammonium, benzonate of soda, ipecacuanha, and the like, than by merely resorting to antidotes for the over-acid condition; *but it is usually advisable to do both.*

I may mention here the powerful influence which I have long found to be possessed by chlorate of potass in removing from the skin those brown and brownish-green discolorations so characteristic of torpid cachectic states, and which are due to the presence in the blood not of bile, but of those waste materials which should be taken from the blood for the formation of biliary and urinary pigments—probably, at least in part, the debris of worn-out blood corpuscles. When these deposits are present in the skin, the combination of chlorate of potass with the chloride of ammonium has a remarkably satisfactory effect.

It sometimes happens that neither podophyllin nor chloride of ammonium will act with sufficient promptitude for an emergency, and in this case a dose of some mercurial should be given at once, after which it will not be necessary to repeat it if the other remedies are judiciously given and long enough continued.

But in advising means to be used to stimulate the secreting functions of the liver in the loss of weight and lung disease, I must emphatically point out that great caution is needed not to overdo this treatment—not to hurry on these functions beyond a normal rate, except for a very limited time—for it has been learned by experiment that over-excitement of the hepatic circulation soon leads to paralysis of function instead of the reverse, sugar being allowed to pass unchanged into the blood in abnormal quantities until temporary or even permanent diabetes results. (See p. 516, par. 6). The connection between tuberculosis and diabetes has been already referred to more than once in this work in other lights, and must not be forgotten.*

Equal caution is necessary that, in our attempts to reëstablish normal liver action, we do not irritate the intestinal mucous mem-

* Some remarkable and permanent recoveries from diabetes have occurred to me under treatment dictated by the facts now in our possession concerning the functions of the liver and pancreas.

brane, and thus, by hurrying the secretions too rapidly through the alimentary canal, stop that great osmotic circulation between the intestinal contents and the blood, the great importance of which in nutrition I have already impressed.

The effects of such arrested osmosis into the blood on loss of weight are forcibly illustrated by the rapid and disastrous descent which diarrhœa always produces in a tuberculous patient. It ought always to be peremptorily stopped. This may generally be done by giving 20 grains of compound aromatic chalk powder in a wineglassful of brandy and water after each motion; after which an excellent and agreeable way of restoring the tone of the intestines is to administer the "St. Raphael Tannin Wine" as a diet drink for a few days.

At p. 521, par. 1 I have called attention to the important influence which the healthy bile exerts upon the lacteal absorption of fats, already emulsionized by the pancreatic juice, in its character as an alkaline fluid saturating the membranous lining of the alimentary tract. This must never be lost sight of in our treatment of derangements of the liver in wasting diseases.

If we have reason to believe that the quantity of alkali thrown into the bowel by the liver is deficient, either from the over acidity of other secretions or through deficient or defective secretion of bile, we must of course endeavor to rectify this defect by restoring the normal action of the liver; but while waiting for this, or in addition to this, we must at once supply the deficient alkali artificially. This will best be done by giving Vals water of the spring Preciense as a drink with meals, combined or not with wine or spirits, according to circumstances, and by a powder of soda, calumba and ginger rapidly mixed in water and taken a quarter of an hour before food. Acid dyspepsia is one of the commonest forms of deranged digestion in consumption, and immense advantage is obtained by correcting this condition. But in doing this care is necessary to combine the alkalies with stomachic tonics so as to restore and maintain the tone of the stomach. It will be found that this is much more satisfactorily done by giving the stomachic tonic in a powder as just directed than in that of fusion or tincture, and I believe this is explained by the simple fact that when given in fusion or tincture, it is absorbed into the blood at once, and its local effect on the stomach soon lost; whereas, when given in a powder just mixed in water the virtues of the drug are gradually given out while in the di-

gestive organs, and its beneficial effect is thus prolonged. However simple such distinctions may appear, it is by attention to them that we secure successful treatment.

The same means of treatment which promote the normal action of the liver in the disintegration of albuminoids and the assimilations of fats, prove equally advantageous in promoting its all-important rôle as the only medium through which the carbo-hydrate constituents of food are made available in the system as sources of heat and mechanical force. (See p. 518, par. 5). We need not, therefore, recapitulate them, but the fact cannot be too forcibly impressed.

If, as there is reason at present to believe, worn-out red blood corpuscles are disintegrated in the liver, it may partly explain the fact that *iron*, which is known to increase the number of red corpuscles in the blood, and therefore the amount of debris for disintegration never agrees when liver action is perverted or arrested. Iron, therefore, is to be avoided in many cases of consumption on these grounds, as well as for these much more vital reasons which I have already pointed out, and which can never be too often repeated.

The disastrous effects of the ill-judged administration of iron in consumption are, I regret to say, constantly coming before me in practice.

We cannot review what has been said of the relations between the portal circulation and the pulmonary circulation, and between the systemic blood and the fluids poured out by the liver and other digestive organs in the great osmotic circulation described at p. 520, par. 1, without recognizing the fact that pulmonary hyperæmia and congestion may be most signally controlled by putting a drain upon the biliary and other intestinal fluids. This is most effectually done, as I have pointed out when speaking of the treatment of hæmoptysis, by saline aperients. And these may be well combined, when necessary, with the special hepatic stimulants already mentioned. But while calling attention to the value of this treatment, I cannot too strongly impress the importance of remembering how *exceedingly powerful are these means of depletion*—second only to blood-letting itself—and hence the necessity for corresponding caution in their employment.

It is evident from all that has been here said of the functions of the liver and of its disorders that the greatest care and consideration are necessary to see that when good is resulting from a certain

amount of compensatory overtax of normal liver functions we are not in too great hurry to interfere; that when these functions are arrested or perverted we do not drive them to excess in our endeavors to reinstate them; and that when we have been called upon to make use of the remedial effects of their temporary overstimulation we cautiously and promptly restore them to their normal proportions.

For the purpose of stopping liver action, when this is urgently required, we have a most potent armament in opium, so potent that its power to do harm in this direction should always make us avoid its use in loss of weight and lung disease, except when *its power of stopping the action of the liver* is either peremptorily called for or at the least is certain not to do more harm than good.

On the other hand, if the liver obstinately refuses to answer to our remedies for increasing its functions, or if the passage of its secretions is shut off from the intestinal canal by obstructive diseases, we can do something to supply its place by passing into the bowel fresh ox-gall sufficiently diluted to promote its osmosis into the blood. A quarter of a pint of fresh ox-gall diluted with a pint of water at a sufficient temperature to raise the mixture to 90° F. should be slowly passed into the bowel every day through a long tube connected with a douche reservoir, so that it may enter only by hydrostatic pressure, and may be retained as long as possible in the intestine. To secure this, the patient should be kept recumbent on the back, with the hips raised above the level of the chest. Pepsine, pancreatine and diastase (peptodyn) should be given with the food, to assist the several digestive processes as before directed.

We have then ample means at our command for increasing hepatic function, for assisting hepatic function, for supplementing hepatic function, for utilizing excessive, or over-taxed, or perverted hepatic function, and for the treatment of disease; and in proportion as we employ these means with skill and judgment we may find in the liver a most powerful ally or dangerous enemy in our wars with Loss of Weight, Blood-spitting and Lung Disease.*

* Professor Rutherford (*Brit. Med. Journ.*) has made elaborate reports of a vast number of experiments to determine the exact action of so-called cholagogues on the biliary secretion of the dog. (It must always be remembered, in reading his results, that the ways of man are not exactly those of the dog! see p. 67.) They may be thus epitomized: 1. He has

found that in a curarized dog which has fasted eighteen hours, the secretion of bile is tolerably uniform during the first four or five hours after the commencement of the experiment, but falls slightly as a longer period elapses. Its composition is unaltered. 2. Croton oil is an hepatic stimulant of very feeble power. 3. Podophyllin is a very powerful stimulant of the liver. During the increasing secretion of bile the percentage amount of the special bile solids is not diminished. If the dose be too large the secretion of the bile is not increased. It is a powerful intestinal irritant. 4. Aloes is a powerful hepatic stimulant. It renders the bile more watery, but at the same time increases the excretion of biliary matter by the liver. 5. Rhubarb is a certain though not a powerful hepatic stimulant. The bile secreted under its influence has the normal composition. 6. Senna is a hepatic stimulant of very feeble power. It renders the bile more watery. 7. Colchicum increases to a considerable extent the amount of biliary matter secreted by the liver, although it renders the bile more watery. 8. Taraxacum is a very feeble hepatic stimulant. 9. Scammony is a feeble hepatic stimulant. 10. Gamboge is an intestinal but not an hepatic stimulant. 11. Castor oil stimulates the intestinal glands, but not the liver. 12. Calomel has no power to increase the biliary secretion, but stimulates the intestinal glands. 13. Euonymin is a powerful hepatic stimulant. It is not nearly so powerful an irritant of the intestine as podophyllin. 14. Sanguinarin is a powerful hepatic stimulant. It also stimulates the intestines, but not nearly so powerfully as podophyllin. 15. Iridin is a powerful hepatic stimulant. It stimulates the intestines less powerfully than podophyllin. 16. Leptandrin is an hepatic stimulant of moderate power. It is also a feeble intestinal stimulant. 17. Ipecacuanha is a powerful hepatic stimulant. It increases slightly the secretion of intestinal mucus; but has no other apparent stimulant effect on the intestine. The bile secreted under the influence of ipecacuanha has the normal composition. 18. Colycinth is a powerful hepatic as well as intestinal stimulant. It renders bile more watery, but increases the secretion of biliary matter. 19. Jalap is a powerful hepatic as well as intestinal stimulant. 20. Sodium-sulphate is an hepatic stimulant of considerable power. It also stimulates the intestinal glands. 21. Magnesium sulphate is an intestinal but not an hepatic stimulant. 22. Potassium sulphate is an hepatic and intestinal stimulant of considerable power. Its action on the liver is, however, uncertain, probably owing to its sparing solubility. 23. Sodium phosphate is a powerful hepatic and a moderately powerful intestinal stimulant. 24. Rochelle salt is a feeble hepatic but a powerful intestinal stimulant. 25. Ammonium chloride stimulates the intestinal glands, but not the liver. 26. Dilute nitro-hydrochloric acid is a hepatic stimulant of considerable power. 27. Corrosive sublimate is a powerful hepatic stimulant, while it is a feeble intestinal stimulant. 28. Calabar bean stimulates the liver, but powerfully only in large doses. 29. Atropia-sulphate antagonizes the effect of calabar bean on the liver, and thereby reduces the hyper-secretion of bile produced by that substance. It does not, however, arrest the secretion of bile, and when given alone does not notably affect it. 30. Menispermis does not stimulate the liver. It slightly stimulates the intestinal glands. 31. Baptistin is an hepatic and also intestinal stimulant of consid-

erable power. 32. Photolaccin is an hepatic stimulant of considerable power. It also slightly stimulates the intestinal glands. 33. Acetate of lead in large doses somewhat diminishes the secretion of bile, probably by a direct action on the liver. 34. Ammonium-phosphate is a moderately powerful stimulant of the liver. It does not stimulate the intestinal glands. 35. Tannic acid does not affect the secretion of bile. 36. Hydrastin is a moderately powerful hepatic stimulant, and a feeble intestinal stimulant. 37. Juglandin is a moderately powerful hepatic and mild intestinal stimulant. 38. Sodium-benzoate is a powerful hepatic stimulant. It is not an intestinal stimulant. 39. Ammonium-benzoate stimulates the liver, but not quite so powerfully as the sodium salt of benzoic acid. It does not stimulate the intestinal glands. 40. Benzoic acid stimulates the liver, but owing to its insolubility its action is less rapid and much less powerful than that of its alkaline salts. 41. Sodium-salicylate is a very powerful hepatic stimulant. It does not notably stimulate the intestinal glands. 42. Sodium-chloride is a very feeble hepatic stimulant. 43. Sodium bi-carbonate has scarcely any appreciable effect as an hepatic stimulant, even when given in large doses. 44. Potassium bi-carbonate feebly excites the liver, and that only when given in very large doses. 45. Potassium iodide has no notable effect on the biliary secretion. 46. Sulphate of manganese does not excite the liver, though it is a powerful excitant of the intestinal glands. 47. Hyoscyanus does not notably affect the biliary secretion, and does not interfere with the stimulating effect of such a substance as sodium-salicylate. 48. Pure diluted alcohol does not affect the biliary secretions. 49. Jabobrandi is a very feeble hepatic stimulant. 50. Morphia has no appreciable effect on the secretion of bile, (every practical physician knows that morphia has a decided effect in stopping the secretion of bile in man!) and does not prevent the stimulating effect of such a substance as sodium-salicylate.

ARTICLE XXI.

OPTIC NEURITIS. By WM. DICKINSON, M. D., of St. Louis.

This disease, on account of its insidious character, and the extremely delicate texture of the tissues involved, is especially dangerous to the integrity of vision. Most affections of the eye are preceded or accompanied by symptoms more or less palpable. Even mild cases of conjunctivitis declare themselves unmistakably by very observable phenomena; but these, if uncomplicated, endanger the safety of the eye in but a slight degree. Keratitis, fraught with more danger, is announced by less manifest and striking symptoms; iritis, also an inflammation of still greater gravity and peril has its peculiar assemblage of well marked but less decided symptoms than the first mentioned; and thus, in general, the more profound the parts involved, the greater the hazard incurred, and generally by symptoms less pronounced.

The disease under consideration usually is not preceded or accompanied by affection of other parts that sustain anatomical or functional relations with the optic nerve, nor even announced by pain, the outcry of nature to declare the presence of lesion; rarely is it occasioned by injury to the globe itself, or of the surrounding tissues; nor, again, is it always or usually declared by obvious ophthalmoscopic changes. But the earliest symptom, and that which commands the attention of the patient and incites him to seek advice, is impaired vision, to a greater or less degree, the chief characteristic of which is that it has been gradually progressive. And even for this he rarely makes application to his medical adviser or the specialist for relief until vision is seriously, perhaps irreparably, impaired. And indeed the probability of observing this impairment is diminished by the fact that one eye only being affected, he unconsciously uses for all purposes of vision, the better eye exclusively. Accident first brings to his knowledge the astounding fact that little or no vision exists in the affected eye—such as the casual closure of the unaffected eye while vision is simultaneously continued or attempted with the other. Not unfrequently I have been consulted by persons

whose vision in one eye was nearly *nil*, and yet this condition must have have existed for months, but which, by themselves, incredible as it may seem, had been observed only for a very short time.

Sometimes this diminution may be appreciated, but yet not the least apprehension of its grave import is aroused, and the matter is dismissed with the inconclusive and fatal reasoning: "It came on of itself, and I guess it will go away of itself." Too frequently his physician, when consulted, applies the same logic, and thus calms the rising fears of his patient, attributing the obscurity of vision to headache, dyspepsia, constipation, or to the chronic affection of some remote organ, through sympathy or reflex action, and treatment appropriate to these conditions is prescribed. These may exist, it is true, as concomitants, and should be obviated, but they do not constitute appreciable factors in inducing optic neuritis. This superficial aspect of the case is especially to be deplored, for this is the time when a correct diagnosis is of the highest importance, and the golden period of successful treatment, at which probably alone, arrest of neuritis is possible, and when alone restoration, if ever, is within the realm of therapeutic agencies. This is the time when is demanded the most accurate investigation of the actual condition of the fundus; how far conforming to, and how far deviating from, that normally presented; to what degree allowances may be made for individual differences in vascularity and still be within physiological limits; whether the papilla is swollen and presenting itself above the spherical plane of the fundus. It is important that all these data be early and definitely ascertained, for they enter as elements into an intelligent diagnosis, and upon this depends the direction of treatment, which should be vigorously employed. If the diagnosis be conjectural, treatment is made at random, and being aimless, but little benefit (except by accident) can reasonably be expected. Meanwhile the patient, deluded by the consciousness that something is being done, hopes on, but reports no improvement, or rather increased obscurity of vision. Other agents, perhaps more active, are plied with the same exercise of misdirection and misapplied effort and with like results. Efforts are made in the wrong direction, certainly not in the right; and the neuritis is still unchecked. The consequences are permitted to proceed with emulative power and redoubled energy, due in part at least to the regimen pursued.

Frequently the physician is not consulted by the patient at all until apprehension of blindness compels. At this time the disease has attained an advanced stage of progress; the delicate tissues of the optic nerve and its neuro-lemmata have suffered such nutritional changes as to render restoration to their normal condition impossible; and the patient can then be assured only of slight improvement or of arrest at its present stage. The import of the classic adage, *osta principiis*, thus receives a tremendous emphasis.

I cannot insist too strongly upon a careful observation of the above suggestions. Several cases of the character described have recently come under my observation, and have specially instigated the preparation of this paper at this time.

Usually the physical consequences of optic neuritis can be detected as soon as diminution of vision supervenes, especially if the cause is situated near the globe. It is then characterized by increased vascularity of the papilla; the vessels ordinarily invisible on account of their diminutiveness, under this new condition, have acquired a greatly increased size; proliferation of tissues speedily takes place from vascular engorgement; the papilla becomes swollen and projects forward into the vitreous, the points of emergence and convergence of the primary arteries and veins indicating its locality in the fundus. This affection is often accompanied by inflammatory cloudiness of the vitreous, which condition greatly interferes with a satisfactory ophthalmoscopic examination; in such cases vision is almost wanting unless the objects are strongly illuminated. The neurolemmata of the optic nerve (outer and inner sheaths) are usually the parts first affected, and in their condition the stratum of loose connective tissue interposed also participates; œdema, and sometimes hemorrhage, takes place in the papilla.

Causes.—Like all effects optic neuritis is doubtless due to pre-existing efficient causes, but very often they are of so occult nature and vaguely foreshadowed that they are not recognized and appreciated as such. Among causes proximate or predisposing to optic neuritis may be enumerated exposure to strong light, natural or artificial, powerfully acting on tissues already predisposed to this affection, or to extreme and frequent alternations of light of different degrees of intensity; excessive and long continued exertion of the visual act; it may result from embolism

of the central artery, from pressure occasioned by orbital abscesses, or neo-plastic tumors of a more enduring character, or by the process of proliferation passing immediately to the neurilemmata; basilar meningitis, idiopathic; or from constitutional syphilis—in which latter class of cases it is often accompanied by or consequent upon iritis or irido-choroiditis; it has also been found associated with diseases of the liver and the kidneys. Many cases must be referred to disturbances of circulation in organs remote; to anomalies of menstruation, or other affections of the uterine organs; in fine, debilitating diseases of whatever kind, which through an inhibitory effect upon the sympathetic system, occasions a neurosis of the vaso motor nerves, which determines local congestion of the optic nerve, and thereby are induced such nutritional changes therein as are incompatible with the due and continued performance of its functions.

From researches made by Türk, he promulgated the view that an increase of the cranial pressure rendered difficult the emptying of the ophthalmic veins into the cavernous sinus, and that by this, disturbances of circulation were caused, which extended to the retina. This was adopted also by Von Graefe. This relation of cause and effect being established may lead to the prognostication of impending cerebral lesions. If, therefore, such conditions be present, both eyes are always affected. But those who thus suffer are rarely conscious of the great peril that threatens their vision, and unwilling to be convinced of it, they more rarely are disposed to submit to the regimen and treatment indispensably requisite to obtain even the best results, imperfect though they be, from the symptoms which we know are of so grave a character; and failing probably of finding *immediate* relief from treatment the best advised, in their desperation they rush from that which is legitimate and intelligent to that supported by more hopeful, but surely unauthorized, assurances of the mercenary empiric.

The swelling of the papilla alluded to may be occasioned in the following manner, viz.: A lymph space exists between the outer and inner sheaths of the optic nerve, by means of which direct communication is established between the arachnoid space and the eye. Intra-cranial pressure, from whatever cause, may produce an oedema of the inner sheath and of the connective tissue processes which it sends into the optic nerve. These being numerous at the papilla, this oedema will cause a swelling of the

optic disc. If this reasoning be correct, sustained as it is by anatomy and the laws which govern fluids, the diminution of vision in consequence of this swelling of the papilla, small though it be, becomes a symptom of prodigious import, and at the same time of great value in the diagnosis of cerebral disease. Being thus early detected, opportunity is afforded for the adoption of prompt and energetic measures looking to the removal of the causes, ameliorating the effects, and at a period when alone any great amount of success is attainable.

Course.—The course of this affection is exceedingly insidious, especially in its incipency, its presence usually being evidenced only by the single subjective symptom, diminution of vision, though in rare instances there may be complaint of a slight degree of headache. Temporary improvement and relapse are salient features of this affection, and this alternation may be continued during months and years before utter extinction of vision shall take place. Whatever peculiarities may accompany its progress, its tendency and termination is one and the same: total or practical blindness, unless early detected; if, however, it is diagnosed at its outset, it *may* be induced to yield to remedial measures intelligently adopted.

If the cranial portion of the optic nerve be the part primarily affected and the proliferation of tissue does not extend downward along the nerve to the papilla and retina, as is often the case, then these latter mentioned parts usually atrophy, presenting true atrophy as distinguished by the ophthalmoscope, and amaurosis is the result.

In rare cases the interstitial tissue, interposed between the sheaths of the optic nerve, becomes gradually swollen, as the effect of extensive infiltration, by a product turbid or very fluid and serous. In some cases the cranial portion thus swollen has attained the size of the little finger. Such cases are usually associated with Bright's disease or tuberculosis, and exist simultaneously with collections of serum at other parts.

Both optic nerves may be affected at the same time, or only one, the latter being the more frequent, the process limiting itself to that portion of the optic nerve anterior to the chiasma. If this condition has continued for a considerable period, the vascular twigs normally quite numerous in the papilla are mostly or

wholly absent, then is presented pure or gray atrophy and with it amaurotic blindness.

As observed above, the globe externally gives no evidence of the fatal processes present and progressing within. Before the grand era of the introduction of the ophthalmoscope, this affection would have been termed progressive amaurosis, another name for progressive blindness, the real pathological condition being unknown or merely conjectural. Such, with sad frequency, is the termination, in spite of the numerous agencies at our command to arrest and restore. Let us interrogate the revelations of this little instrument in a case of pure, uncomplicated optic neuritis. All the dioptric media are normally transparent. The optic disc and its minor details, as well as those of the fundus are distinctly visible. The papilla is, however, swollen; appears slightly projecting forward into the vitreous; all its vessels are enlarged, even the minute branches, which in the normal condition are not apparent. In consequence of the generally increased vascularity the outlines of the papilla in some instances can with difficulty be distinguished, and its precise locality can be determined only by the convergence of the larger vessels. The tissues surrounding partake of the swollen condition indicated, and at a later stage, portions of the vitreous adjacent to the retina present a clouded appearance, in consequence of which vision is to a greater or less extent impaired.

But it is a remarkable fact that the ophthalmoscopical appearances of the fundus and the degree of vision do not always correspond. In the early stages, especially, very considerable changes in the condition of the fundus may be apparent, while vision as yet remains but little affected; this is the period of peculiar peril, because the disease not being indubitably declared by positive symptoms, its invasion is not duly recognized, and no interference being instituted, it continues to progress. Again useful vision may be nearly annihilated, and, as yet, the ophthalmoscopic changes indicate but little deviation from the normal condition, or while the appearances of the fundus are yet within physiological limits. This anomalous condition exists in consequence of the remoteness of the seat of the lesion from the globe and though quite good vision may for a time be retained, a great diminution may suddenly and without obvious cause, at any time take place, which shall advance to complete blindness in a brief space, in rare instances in a few hours.

Optic nerve atrophy argues the pre-existence of optic neuritis and is pathologically due to fatty degeneration of the fibrillæ of the optic nerve, and of its neurilemmata, or upon defective nutrition, occasioned by compression of the blood vessels, by exudation within the sheaths, or by their impermiability from other pathological conditions.

Treatment.—This must of course depend upon the conceived nature of the cause, and the peculiarities of each individual case. Optic neuritis is probably never due to a mere local optic nerve change, but always arises from encephalic causes which are occasionally hidden. At first it is essentially a disease of the connective tissue, rather than that of the nerve fibres themselves. Congestion being the first observable pathological change, all causes and influences that tend to produce it must studiously be avoided. Absolute rest of the eyes and exclusion of light is of prime importance, and reference to these conditions should be observed throughout treatment. While the patient remains at his home it is extremely difficult if not utterly impossible to secure them, because the temptations are so numerous and irresistible to infract injunctions imposed, arising from fancied necessities of various kinds, aided by the want of due appreciation of the gravity of the affection. The single visual act continued but for a moment may set in motion a series of causes and effects that shall neutralize the victory by toilsome progress gained over an insidious and baleful foe, by dint of persistent efforts of a week or month. The admission of light to the room must be intelligently regulated and by slow gradations. In respect to medicaments, there are no specifics with which we can resist the progress of this disease. The systematic and judicious employment of the various salts of mercury have been found most efficient, (e. g.) mild chloride, bi-chloride, pot.-iod., whether or not there is a syphilitic history. These may be supplemented or alternated with pot.-iod., and pot.-brom. The internal exhibition of strychnia alone or in conjunction with iron, will often prove beneficial. If the affection be recent and the patient tractable and submissive, and suitable treatment be employed, amelioration or cure in many instances may reasonably be anticipated. But if the disease has made much progress and continued through several months and quantitative vision only remains, a most unfavorable prognosis must be given. Even under the most favorable aspect and while

our efforts seem to be crowned with triumphant success, it should be remembered that there is a strong proclivity to relapse, from slight and apparently insignificant causes.

The treatment prescribed will obtain additional effect by counter irritation to the nucha, the mastoid processes and temples, combined with leeching to the same parts. This treatment, pursued through two or three weeks, in favorable cases, will give evidence of beneficial results. Should *considerable* improvement fail to take place, arrest of the disease and preservation of the present visual power, is usually the most that can be attained, and even this is an achievement of inestimable value.

The prognosis under all circumstances must, therefore, be very guarded; the more intense has been the congestion, the greater has been the connective tissue proliferation; and the longer the period during which infiltration of the optic nerve has existed, the less favorable the prognosis. In many instances before application for treatment is made, such injury has been inflicted by these processes that restoration is impossible, and yet so inappreciative is the patient of his real condition that very often he regards the affection as comparatively trivial, and that some simple treatment, or the adjustment of a glass of proper focus, is all that is required.

When, therefore, a patient informs us that defective vision in one or both eyes was the first symptom observed, and that this has regularly or by successive gradations progressed, unaccompanied by other symptoms of a decidedly significant character, optic neuritis is to be more than suspected. The aid of the ophthalmoscope is then immediately to be invoked, and if the suspicion is confirmed by the appearances of the fundus, the course of treatment and regimen above enjoined or one similar, is to be pursued; and although the condition of the fundus may still be within physiological limits, the integrity of vision is still in great jeopardy, and a regimen continued for an indefinite period, based upon the revelations of that instrument, vigilantly obtained from time to time, is imperatively demanded.

ARTICLE XXII.

A RARE CASE OF PERI-NEURITIS FOLLOWING NERVE LESION. By F. F. DICKMAN, M. D., of Fort Scott, Kansas. Read before the Southeast Kansas District Medical Society, July 1, 1879.

The article in the April number of the *American Journal of Medical Sciences*, by Julius Althaus, M. D., entitled "A Contribution to Peripheral Nerve Diseases," reminds me of a case recently under my care; one of those rare forms of nerve disease following an injury, and at the same time a good example of the so-called trophic troubles which occasionally follow such lesions. The case was certainly unique, and for a time, an unsolved problem in diagnosis. Thinking the details might be of interest, I give them in the order of their occurrence.

On the night of August 10th, 1878, I was called to see Mr. V., a stout, hearty man, 40 years of age, a coal merchant by occupation, who, in driving down an embankment, was thrown from a buggy, picked up in an unconscious condition, and conveyed to a house a short distance away. When I saw him, about four hours afterwards, I found him still in a semi-conscious stupor, difficult to arouse, able to swallow, pulse 50, pupils contracted, respiration regular, but interspersed by frequent sighing. No sign of any paralysis. A closer examination revealed the right clavicle broken and a severe contusion involving the left side of the face, eyelids swollen nearly shut, conjunctivæ deeply injected, especially the outer half. A diagnosis of concussion of the brain was made, in addition to the other injuries named. My patient became fully conscious on the third day, and made as rapid a recovery as the circumstances would admit, or could be hoped for.

About a month afterwards the patient called my attention to a severe pain beneath the left eye, in the region of the prominence of the cheek and infra-orbital foramen, deep down in, of a boring character (as the patient expressed it) constantly present, night and day, without intermission. I regarded the pain as of an ordinary neuralgic character, and for a period of six weeks

everything in the shape of anti-neuralgic remedies were tried, and found to be of no avail; opium alone gave any relief. Finally the patient became disgusted and passed from under my observation for a time.

In December, 1878, my colleague, Doctor H., called my attention to the patient again. He was now complaining, in addition to the pain, of a sweetish taste which annoyed him a great deal, constantly present, before, during and after meals. Everything tasted sweet.

Doctor H., attributing the taste to a catarrhal condition of the mucous membrane of the stomach (the man being somewhat intemperate), found all his efforts useless. Aware that the patient had previously been under my care, he asked me to assist him in a more thorough investigation of the case.

Upon a closer study we found little evidence of either catarrh of stomach or intestine; in fact no evidence of abnormality in any of the abdominal organs, or their physiological functions. The processes of digestion, assimilation and excretion were certainly carried on with their accustomed vigor. Tongue clean, appetite good, sleeps well when not too much annoyed by the pain described, no headache, no tenderness upon pressure over the region of the stomach or intestines, nor any complaint of flatulence or distension from gaseous accumulations. I finally decided the trouble to be nervous and concluded that at the time of the accident some injury had been sustained by the nerve or its sheath, or the parts immediately adjacent thereto, producing an inflammatory irritation, and that the pain and taste had this common factor as a cause. Quinine and the mineral acids were prescribed subsequently, by advice of counsel; bismuth and pepsin in large doses, and the nitro-muriatic acid were tried, under the impression that there existed some abnormal condition interfering with the proper transmutation of amylaceous substances; with this same view, at a later period, I had the patient take free cathartics, and then abstain from all starchy food for a time. But all our efforts were of no avail, the abnormal taste persisted.

On March 6th, 1879, the patient called my attention to a few vesicles upon his forehead, and stated that on the evening before he had suffered from a severe pain on the left side of the head and face, for which he applied spirits of camphor freely and attributed the eruption to the use of this drug. I advised an anodyne lotion. The next day I called to see the patient at his

home; he now suffered from an intense burning pain over the left half of the face. The herpetic eruption had extended so as to cover the entire distribution of the cutaneous branches of the trigeminus. The eruption was vesicular in character, some isolated, some in groups; there seemed to be a vesicle for each nerve filament; this was particularly noticeable at the nose and the mental foramen; a few were on the inside of the upper lip; here they looked like little blisters from a burn, ashy gray in color, very little if any elevated above the surface, resting upon a slightly reddened base, with healthy tissue intervening. The affection was strictly limited by the median line. The temperature was 99°, pulse, 80. No chilly sensation. I felt warranted in making the diagnosis of herpes zoster; prescribed anodynes freely, a laxative, followed by quinine and iron, and ordered the vesicles painted over with collodion.

March 8th, 1879, patient rested well; temperature 99°, pulse, 90. Treatment continued.

March 9th, 1879, patient reports not so well; Doctor Baldwin in counsel. Condition about the same, except the face being swollen and a diffused redness suggest the idea of erysipelas; temperature 99°, pulse, 100. Treatment substantially continued. At Doctor B.'s suggestion olive oil was applied to the surface, followed by a hop poultice.

March 10th, patient doing well; rested better last night; temperature 100½°, pulse, 100. Treatment continued.

March 11, patient improving; some of the vesicles scabbing over; temperature 101°, pulse, 105.

March 13th, two days later patient convalescent, free from pain, eats and sleeps well; temperature and pulse normal.

A week later the patient had a similar attack, going through about the same course; coming on with an intense itching, followed by the acute, burning pain, and finally the eruption, which underwent pustulation and left distinct, depressed scars of irregular sizes.

Since this last attack the patient has been entirely free from the deep seated pain, and measurably so from the abnormal taste, and complains most of an itching sensation still present in the parts. The interest in the case can be best studied under the following heads:

First, will the facts in the case warrant the diagnosis made, and, second, can we with any degree of certainty localize the

seat of injury, determine the probable pathological factors, and thus account for the symptoms in the order of their occurrence?

Under the first head we may cite pain as a prominent symptom of neuritis, but in distinguishing it from common neuralgia, it loses much of its diagnostic value, unless we gather something from the character, long duration, and stubbornness in not yielding to remedies usually beneficial in such cases.

Charcot, in his lecture on "Diseases of the Nervous System," cites an interesting case reported by Beck, where a woman 57 years old experienced for about a year violent pains on the right side of her face—intermittent at first, but afterwards becoming continuous. The sensibility of the face never entirely disappeared; the conjunctiva of the right eye was deeply injected. Death took place unexpectedly. On *post mortem* examination the casserian ganglia of the right side was found to be of considerable volume, and hard, and the three branches of the corresponding trigeminus were much thickened up to the point of emergence from the bone."—[*Med. News and Library*, July, 1878.

The most prominent symptom of neuritis is pain at the seat of inflammation, or in the course of the nerve extension, to its remote ramification.—[Wood's Practice, vol. II, p. 909.

Mitchell, Morehouse and Keen (Gunshot Wounds and Other Injuries of the Nerves, Philadelphia, 1864), in speaking of certain cutaneous eruptions following nerve injuries, describe them as accompanied by acute pain.

Niemeyer cites pain as a prominent symptom of neuritis, in course of the inflamed nerve extending to its peripheral termination.—[Pract. Med., vol. II, p. 279.

Again, the abnormal taste. This, at first and subsequently, was thought to be due to some abnormal condition of the digestive organs; but upon close and frequent examination they were always found negative. The general health was found good, and the usual symptoms of catarrh of the stomach were entirely absent. Finally, the remedies prescribed were found to be of no benefit.

It is a well known fact in physiology that the voltaic current has a peculiar action on the nerves of special sense; thus galvanization of the optic nerve causes flashes of light; of the auditory nerve, ringing in the ear; of the gustatory nerve, a coppery taste in the mouth (author Amer. Jour. Med. Sci.). Our author cites a very interesting case of an affection of the olfactory nerve,

where the smell of phosphorus was very persistent. Further, in speaking of inflammation of the fifth nerve, he states that when this occurs in the first portion of the Fallopian canal, below the origin of the chorda tympani, we have the same symptoms as in external neuritis. But if the second portion is affected, we have, in addition, a peculiar modification of the sense of taste, variously described as sweet, bitter, etc., which must be ascribed to the fact that the chorda tympani has become involved. As analogous cases I may cite the photopsies in optic neuritis, and tinnitus aurium in inflammation of the middle ear.

Last, but not least, the herpes zoster; erysipelas, on first seeing the case, was thought of, but on carefully considering all the symptoms, we felt warranted in excluding that disease. The absence of chilly sensations, the delay of the elevation of the temperature until the third day, the absence of much swelling or diffuse redness, and finally the strict limitation by the median line, furnished ground for its exclusion. The vesicles were isolated and distinct. Relapses certainly cannot be of frequent occurrence in erysipelas, if we regard that disease (as is generally done) as an essential fever with a local manifestation. Herpes zoster is now regarded as an inflammatory affection of the peripheral ends of the trophic and sensory nerves. Prof. Wood, as early as 1866, says: "Attention has recently been directed to the fact that inflammation of the subcutaneous nerves is apt to induce inflammation of the skin, with a vesicular or other eruption on the same, and even herpes zoster has been referred to this origin."—[Loc. cit., vol. II, p. 909.

Prof. Chareot, under the head of traumatic nerve lesion, states that "trophic troubles consequent on nerve lesions are of such a nature as to set up an irritation in the parts, in which case, and then only, we see arise those tropical troubles to which I invite your attention;" and after classifying them under the head of skin affections, specially cites the zoster as of frequent occurrence, and even designates it *zona traumatica*.—[Loc. cit., p. 16.

Niemeyer, after claiming for herpes zoster a close resemblance to erysipelas, in being an acute dermatitis, arising from unknown causes, and after giving Hebra's definition, viz., "a series of acute cutaneous diseases of cyclical course, marked by an exudation which collects in drops under the epidermis and elevates it," finally states as follows: "It may be regarded as established

that herpes zoster depends upon disease of the trophical fiber of the motor or sensory nerves, which supply the parts affected."

The facts stated and authors cited would seem sufficient to draw the following conclusions, namely, that while total division of any nerve, i. e., separation from its center is followed by complete abolition of its functions, irritation, whether by a current from the galvanic battery, an injury from a wound, or a pressure from an exostosis or tumor, or the products of inflammation within its sheath or near it, or inflammatory changes in the nerve itself, or ganglia may produce exaltation, or some change in its usual function; thus pain in a sensory nerve, spasmodic contractions in muscles supplied by motor nerves, and the peculiar changes in the functions of nerves of special sense already described, while at the same time the trophic fibers of these same nerves lead to those peculiar changes of nutrition in the skin, muscle or bone, described by the author, and to a certain extent present in our case.

In the attempt to locate and arrive at some knowledge of the pathological condition, a brief description of the regional anatomy of the affected nerves will not be out of place. From its superficial origin a lateral part of pons varolii, the large or sensory root of fifth nerve passes through an oval opening of the dura mater, in company with the motor root, and terminates seemingly in the Gasserian ganglia; from this are given off three branches: The ophthalmic passes forward along the outer wall of the cavernous sinus, through the sphenoidal fissure, divides into lachrymal, frontal and nasal branches, supplying the forehead and upper portion of the face. The second or superior maxillary passes forward through the foramen rotundum and emerges on the face at the infraorbital foramen, supplying the middle third of the face. Third and last, the inframaxillary, is joined by the small root of the fifth, just after it emerges from the foramen ovale; a final branch reaches the surface by the mental foramen and supplies the lower third of the face. The Gasserian ganglia is lodged in a depression near the apex of the petrous portion of the temporal bone, its upper surface intimately adherent to the dura mater. The chorda tympani and glosso pharyngeal, one of the divisions of the eighth pair, are the special nerves of taste; the former is an apparent branch of the seventh, a motor nerve. Physiology, however, has demonstrated it to be a nerve of special sense, it probably has a distinct origin; it leaves the seventh at the back

of the tympanum, ascends from below upward in a distinct canal running parallel with the aquaductus fallopius, through the cavity of the tympanum, and joins the lingual branch at an acute angle. The glossopharyngeal passes from its superficial origin across the flocculus and leaves the skull at central portion of jugular foramen, and in its passage grooves the lower border of the petrous portion of the temporal bone. This must suffice for the anatomy.

Judging from the symptoms in the order of their occurrence; first pain, then abnormal taste, it would seem that the sensory nerve was affected before that of special sense; the fact that all three branches of the trigeminus, the evident deep seat of the pain, and the occurrence of the eruption nearly six months later, are evidences that the irritation was central and not peripheal, the close proximity of the groove which transmits the glossopharyngeal to the Gasserian ganglia, will afford one explanation why an affection which originally only affected sensation, should finally produce a change in taste. What this cause of irritation is, whether disease of the petrous portion of the temporal bone, or the dura mater in the immediate locality, I am unable to say. That the special cause still exists there can be no doubt as shown by the abnormal taste, some pain and itching sensations still remaining. In conclusion I will state that several diagnostic tests were omitted. I neglected, however, to state in the text that there was at one time some anaesthesia of the surface. To note the difference of taste between the two sides was unfortunately entirely omitted.

ARTICLE XXIII.

EPITHELIOMA. By W. H. DALY, M. D., of Pittsburg, Pa.*

Having recently had occasion to observe four cases of epithelioma—two of which I treated, the remaining two declining what they regarded as unnecessarily heroic treatment—I was enabled only to study their characteristics and history, which, with your kind permission, Mr. President, I will briefly present to the consideration of the Society this evening.

It may not be altogether out of place to remark here that a microscopic examination of epithelioma shows among its textures great numbers of cells of irregular shape, $\frac{1}{200}$ to $\frac{1}{1200}$ of an inch in their long diameter, which resemble normal epithelial cells encapsulated. From this resemblance the disease is named. There is high authority both for and against classing it among cancerous diseases.

The history of the four cases which I present to you this evening add their testimony, meager though it be, to the doctrine that epithelioma is cancerous in character, and decidedly so, and this is my reason and excuse for reporting them.

CASE I.—John O'C., aged about 64, married, and the father of a large and healthy family, a native of Ireland, applied to me for treatment at the Department for Diseases of the Throat at the Pittsburg Free Dispensary, in May of the present year. He called my attention to a sore upon the inner margin of the lower lip, right side. The teeth immediately behind the sore were deeply indented by the attrition of clay pipe stems. He had been an inveterate smoker for years, and addicted to spreeing, as well. He was of fine, stalwart build and ruddy complexion, and had never been sick in his life, to use his own expression.

The sore was somewhat fungous at the bottom, with an indurated and everted rim of a grayish white, while the bottom was a bright red, and painless. I diagnosticated the case to be one of

* Read before the Allegheny County Medical Society.

epithelioma. He declined the use of the knife at this time, and begged that milder measures should be tried. This was done for some weeks, the sore meanwhile increasing, when at length he consented to be admitted to the Western Pennsylvania Hospital on June 18th, for the purpose of removal of the sore by an operation with the knife. I effected the removal the following day, being assisted by the resident staff; the incision being an irregular V shape one, with the apex toward the mental process of the inferior maxillary bone; the base at the margin of the lip. This is the portion of the lip removed (pathological specimen exhibited). The epithelial sore you will observe on the inner surface and margin of the lip, extending well down to the labio maxillary fold.

The wound was closed with hare-lip sutures, and healed rapidly, leaving little or no deformity, as you will see by this picture, taken soon after the healing process was completed. He was discharged from the hospital, with the hope, at least, that the disease was arrested for a reasonable length of time; but in that I was disappointed, the patient again presenting himself for treatment at my throat clinic in less than three months. I then found a swelling which was quite red, and indurated, involving the body of the inframaxillary bone posterior to the mental process. The swelling was about the size of a split olive, and tender. He declined operative interference when informed it would be necessary to remove a portion of the lower jaw.

Some weeks after he reconsidered his determination, and applied to me again. I then found the right sub-maxillary gland involved to a considerable extent, and the patient's health much broken down. Declining to operate myself under these unpromising circumstances, I referred the case to my colleague, Dr. McCann, at the Western Pennsylvania Hospital, whose judgment agreed with my own in the matter. I had hoped to have shown you this case to-night in its present condition (the tumor has grown to a large size), but the patient is now an inmate of the Poor Farm. His case must soon have a fatal termination.

CASE II.—Jas. K., a gardner, aged 35, native of Ireland, was sent to me by his employer, from McKeesport, for advice. He was an inveterate pipe-smoker. I found a sore upon the margin of the lower lip, left side, which was about the size of a silver ten cent piece; scooped out, grayish white edges, and red, eroded

bottom; surrounding tissues extremely indurated. In fact, the sore seemed to be underlaid with a stratum of indurated texture, which accounted for its having existed for six years upon his lip without farther apparent contamination than a few small lymphates in the structure of the lip below the labio maxillary fold. These felt like peas imbedded within the lip, were painful upon pressure, and extremely hard.

Regarding this case as an admirable one for operation by means of the galvano-cautery, as with the small cautery knife I could penetrate the tissues deeply after removing the parent sore, and reach the infected glands within and below, compassing their entire destruction without the loss of blood or the production of much pain. This I did at once, aided by Drs. Wallace, Estep and McKelvy, and without the use of an anæsthetic, the patient really suffering little pain during the operation. The case was given into the care of my neighbor, Dr. Wallace, owing to my own contemplated absence from the city immediately after the operation. The case progressed favorably to a complete healing of the parts, without resulting deformity, and it is to be presumed that so far there is no return of the disease.

This case is peculiar in the fact that the patient was much broken down and cachectic, yet notwithstanding this condition, the epithelial sore had existed upon his lip for more than six years without infiltrating the tissues to any extent further than a distance of an inch and a half below the parent sore. This can only be accounted for by the extreme induration of the underlying structure and the inactive state of the absorbent functions of the lymphatics.

CASE III—Presented more striking features in a robust Irishman, aged about 40, of ruddy complexion, unmarried. Had been intemperate, both as to drinking and smoking. Upon the left side of the tongue, near its base, was seen a tumor about the size and shape of a walnut, fungous in appearance, deeply fissured upon its surface, but painless. Both submaxillary glands were involved to enlargement the size of pullet's eggs, and tender. The common carotid arteries passing just beneath gave their impulse to these glands in a marked degree. What was especially interesting in this case was that the present condition was the growth of only two weeks. I proposed to remove the tumor, along with half the base of the tongue, by use of the galvano-ecraseur, hoping

by this to avoid the dangerous hemorrhage which might follow other means, and to remove both submaxillary glands by a careful dissection with the knife. The patient agreed to every measure excepting the *quid pro quo*, and was dismissed without further consideration, not deeming him a proper subject for charitable or gratuitous treatment, as, by his own admission, he was able to pay. I learned afterwards that my friends, Drs. Huselton and McCann had been consulted by this man, the latter having expressed to the patient an opinion similar to that I gave him, viz., whatever could be done, should be accomplished without further loss of time.

CASE IV.—Mr. C., aged about 60, Irish. An inveterate smoker. Had a fissure upon the middle fore border of the lower lip, which seven years ago grew into a sore. He afterwards became insane and was a patient at Dixmont's, during which time compulsory abstinence from smoking permitted the sore to heal. After the recovery of his mental faculties and a return to his labor, he also returned to the habit of excessive smoking and the sore returned soon after. About a year ago, an operation was made by the use of the knife, at the Free Dispensary, for the removal of the sore, which was pronounced epithelial cancer, according to the patient's statement. At the present time the sore involves about one inch in length of the red border of the lower lip and its entire width, with marked involvement of the inferior maxillary gland of the left side. As operative interference was declined by the patient, so, accordingly, was further advice declined on my part, as mere medical treatment must prove fruitless, and soon surgical interference will even be of no avail.

One lesson of these cases is that the entire removal of the diseased structure, with a liberal inclusion of surrounding apparently healthy tissue, should early be resorted to.

In case I, I am now quite satisfied that in the delay occasioned by the hopes of the patient, that his disease could be medically cured, was the time during which the subjacent maxillary bone and gland became involved, though not apparently so, yet enough to cause the appearance of the diseased growth in this new locality.

Another lesson is, so far as these cases are concerned at least, first, that if infiltration of surrounding tissues are characteristic

of cancers, they all possessed it. Second, if a tendency to infect adjacent glands belong to cancers, these cases had glandular infection. Third, if a tendency to recur is a feature of cancer, one of these has fulfilled all the lineaments, and it is not unsafe to presume that case II will likewise be recurrent, since the subject is one of cachectic constitution.

ARTICLE XXIV.

EPITHELIAL CANCER—AMPUTATION AT HIP-JOINT.* By F. J. LUTZ, M. D., of St. Louis.

Instead of writing a lengthy paper upon any one subject, I have taken the liberty to bring before you a few specimens which have been exceedingly interesting to me, and which I hope will give rise to a discussion of the pathological conditions which they represent.

It is far from me to claim either originality or novelty for the few remarks with which I wish to preface the report of a case of epithelial cancer; on the contrary, I would rather you should consider them an attempt briefly to sketch our present positive knowledge concerning the origin of this most remarkable deviation.

For obvious reasons I will refrain from the discussion of those great questions concerning the part which the system at large plays in the production of cancer, or the influence which some hold, a certain neuropathic condition exerts; these are problems as yet *sub judice*, and beyond my present intention.

Experience has taught that epitheliomata are the most local, and hence the most curable of all forms of cancer. Add to this the frequency with which they occur, the importance of recognizing them in their very incipiency cannot be over estimated. The diagnosis is, however, usually attended with considerable difficulty.

* Taken from advance sheets of the Transactions of the Medical Association of the State of Missouri.

At first, a simple epithelial exuberance takes the place of the stroma and this crowding out is most apt to occur when, as in advanced years, the skin, owing to the fact that it has become atrophied, cannot successfully resist the encroachments of the epithelium. Hence Thiersch has defined the origin of epithelial cancer, a disturbance of the histogenetic equilibrium between epithelium and stroma. Any structure into whose composition epithelium enters may be the site of epithelial cancer; most frequently, however, it begins on the surface of the hitherto apparently healthy skin.

"The first thing that is observed," says Busch, "is a horny scale rising a little above the surface of its surroundings, and clinging firmly to its base, so that it cannot be removed by an ordinary ablation. If it is torn forcibly away, a bleeding surface is exposed; a careful removal of the scab exhibits its rough under-surface, with numerous small projections (cones) which extend into the skin."

Of course the size of these cones varies with the structure upon which the scab is found. Thus, they are much more delicate on a scab taken from the lips than on one from any other portion of the face.

The skin from which the scab has been removed forms a slight indentation; this is covered by a delicate layer of epithelium, and by a careful examination the small cavities into which the cones had been inserted can be discerned.

It would be erroneous to consider this condition cancer. As yet it is but a hypertrophy and continued nutrition of those cells, which in the normal course of events are thrown off. Besides this hyper-nutrition of the epithelial cells, there is also hypertrophy of the papillæ of the stroma, a fact which is accounted for by the increased amount of nutritive material furnished to the particular spot.

This condition, as stated above, is not cancer, but may develop into that dreaded malady. Sometimes these scabs are thrown off, and renewed in endless succession, without any other change; again, after this process has been repeated a number of times, the scab is not formed again, but a *wet* surface is left behind—the naked cells are visible.

The ulcer now assumes great activity. The soft cells rapidly protrude into the subjacent connective tissue in the form of cones. We have before us an eating ulcer, which may either present an

even surface, or the outgrowing papillæ may give it a cauliflower appearance.

If this development of epithelium does not progress too rapidly, the ulcer may exist for years, purely local, exerting no deleterious influence upon the general system. Usually, however, the cones penetrate the subjacent tissues, enter the bones, and infect the lymphatics. The system now becomes infected; the local disease has become constitutional.

An interesting, but, as yet, unsettled question, suggests itself at this juncture, namely, whether the first scab which forms and which is suffered to remain, prevents the newly formed epithelium from growing towards the surface, as in the normal condition of affairs, thus forcing it to grow downwards or rather inward. Be this as it may, experience teaches that by repeated removals of the scab, a more extensive development of the cones mentioned before is prevented.

Busch has shown that if the scab is washed away by a solution of soda (one part of soda to one hundred parts of water) repeatedly during the day, the indentation which remains after the removal of the scab gradually rises to the level of, and becomes covered by normal epidermis. Hence it is of the utmost importance, after removing an epithelioma, to direct the patient to wash the cicatrix regularly with a weak solution of soda. No one would, however, venture to assert that this will prevent a recurrence, for who can be absolutely certain that he has removed the whole of the neoplasm? And we know that if only a single epithelial cone is left in the deeper structures, hypernutrition goes on in it; the cells are multiplied, and they accumulate until they finally burst open upon the surface.

CASE.—The skull, which I will pass around for your inspection, was taken from a German 35 years of age, a laborer by occupation, who was admitted into the Alexian Brothers' Hospital, April 29th, 1877. His family history was good; no cancerous or syphilitic case had, to the best of his knowledge, ever occurred in any member of his family. He himself had never suffered from any venereal disease, and had enjoyed good health throughout, until two years prior to his admission, when a small pustule made its appearance on his face, about over the *infraorbital foramen*. The scab which formed over it he was in the habit of removing with his finger nails. The ulcer grew larger and deeper, in spite

of the numerous salves and ointments which he employed on the recommendation of kind and sympathizing neighbors. When the wound had reached the size of a silver quarter and some considerable depth, he consulted a physician, who drew the edges together by means of sutures, and promised the patient a speedy cure. After submitting to various other modes of treatment, he finally sought admission to the hospital.



Fig. 1.

The appearance of the disease then can best be understood by examining fig. 1.

It will be seen that there are two wounds, separated by the malar bone. The orbital portion of the superior maxillary and a part of the superior wing of the sphenoid were destroyed; the inferior and external rectus muscles and the inferior exterior portion of the eyeball were laid bare. The second wound involved the articulating surface of the inferior maxillary and the glenoid cavity. The ankylosis resulting therefrom permitted the patient to separate the jaws only about one-half inch. How far the deeper structures of the orbit and post nares were involved could not be determined. Deglutition, especially of liquids, was performed with comparative ease.

The case was repeatedly seen in consultation by my distinguished friend and teacher, Dr. Gregory, and my colleague, Dr.

Wesseler, and it was concluded that operative interference was not justifiable, because of the great inroads already made by the disease. The treatment, therefore, consisted in keeping the wound clean by repeated ablutions and dressing it with a solution of carbolic acid gr. iv, and chloral hydr. gr. ii to $\bar{3}$ j of water. Internally Potass. Iod. and arsenic, together with other tonics. To relieve pain, morphia and chloral were administered.



Fig. 2.

Fig. 2 represents the patient about four weeks before his demise. The septum between the two wounds has now been destroyed and the side of the head presents an enormous cavity.

For three years and two months he withstood the ravages of the disease and finally succumbed June 15th, 1878.

On post mortem the vessels of the brain and its membranes were very much infected. The cerebral substance itself was softened throughout, but more especially the right anterior lobe, which was of the consistence of cream. In the membranes over the anterior lobe there was a circular aperture about one and a half inches in diameter.

You will see from the specimen that the right side of the face is destroyed, the right superior maxillary and malar bone, the zygomatic process, and the greater part of the squamous portion of the temporal bone, the whole anterior and middle fossa of the

base of the skull are destroyed. The turbinated bones are partly gone and the sphenoidal cells are laid open.

Osseous structures, invaded by epithelial cancer, rarely produce outgrowths like those found in medullary cancer. The bones become soft, are broken up and finally destroyed. It is one of the distinctive characteristics of malignant ulceration that the tissues, after becoming infiltrated, degenerate and ulcerate away. The skull before you shows that the bone has cleared away before the cancerous ulcer; the cavities in the osseous tissue, with their abrupt, jagged, eaten out edges, evince the rapid work of irreparable destruction.

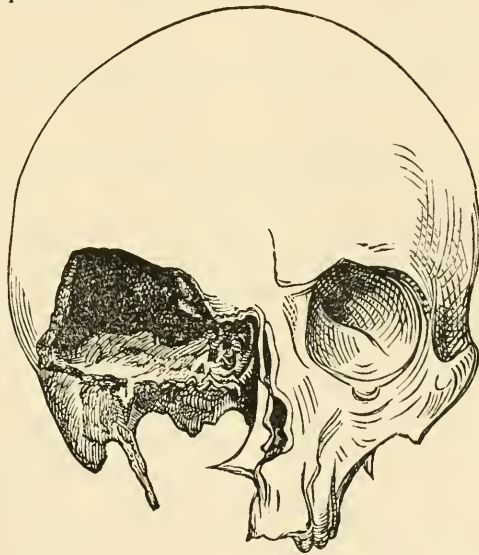


Fig. 3.

In conclusion, it may not be amiss to say a word about operative interference, for this part of the subject is the one in which both the patient and the surgeon are most interested. The accumulated experience of surgeons shows that quite frequently both the sufferer and the operator are sadly disappointed by the rapid recurrence of the disease after its supposed removal by the knife, yet whenever the diseased part can be removed in its entirety, without great risk of life, surgical interference is to be advised, for experience has also taught that in a number of cases good results may be hoped for, and at the worst, the removal may give great comfort for a time, at least.

AMPUTATION AT THE HIP-JOINT.

The next specimen to which I wish to call your attention, is a femur taken from a thigh which I amputated at the hip-joint, on the 17th of March of this year.

Exarticulation of the hip is an operation of such gravity and such rarity, that it is important for every surgeon whose lot it may be to be called upon to perform it, to record his results, in order that some light may perhaps be shed upon some, as yet, mooted questions.

The patient, who is 18 years of age, and whose family is of a scrofulous constitution, came under my observation about eight months before the operation was performed. He then presented a most emaciated appearance, a high temperature in the evening, loss of appetite and sleeplessness. For six months he had been confined to his bed with running sores at his hip. He could assign no probable cause which may have excited the inflammation. On examination, several sinuses were observed, through which a probe could be passed down to the roughened surface of the upper third of the femur; motion at the hip-joint somewhat limited; false ankylosis at the knee. Osteo-myelitis was diagnosed and it was proposed to the patient to cut down upon the bone, in order to give free exit to the pus and to remove the necrosed bone which would be encountered. He, however, declined any operation, and I had to content myself with uniting two of the larger sinuses, which resulted in an opening about four inches long, running longitudinally. The finger, passed into this opening, found a cavity extending under the gluteal muscles and around the neck of the femur. The opening was kept open and the abscess and sinuses were washed out with antiseptics. Nutritive diet and tonics were administered and the patient gradually gained strength. He was soon afterwards removed to his home in the country and I saw nothing more of him until March 12th, when I was again summoned.

The patient now presented the appearance of a skeleton. His skin was of a peculiar waxy color, liver and spleen slightly enlarged, bowels regular; examination of urine gave only negative results; tongue clear and dry; pulse 110, feeble and quick. The left thigh, from the knee upward, presented the appearance of

an Indian club used by gymnasts with the thick end near the hip joint. Above the knee I could encompass the thigh with my thumb and middle finger. The opening which I had made when I last saw him had been closed with the exception of a small opening near the trochanter major, from which considerable pus of a very foetid odor, dribbled. The soft parts were undermined in every direction; the leg was œdematous. He had not left his bed for eight months, and could move the diseased limb only by means of the healthy one.

The opinion was given to the patient and his relatives, that possibly an amputation would save the life of the sufferer, but that the chances were very much against him. Of course I expected no immediate answer, and I was rather surprised after the discouraging picture which I had drawn to him, to receive a message next day to come and operate at my earliest convenience.

After making all the preparation necessary for so formidable an operation, I proceeded to perform it on the 17th of March.* The patient was placed under the influence of chloroform, and I would here say in parenthesis, that in the struggle which ensued during the administration of the anæsthetic, I firmly grasped the diseased thigh about its lower third, and by doing so, forced an opening into the soft parts with my thumb, from which about a pint of pus flowed.† He was then placed upon his right side and an incision about seven inches in length was made, beginning an inch and a half above the trochanter major, parallel to the longitudinal axis of the femur, and a little in front of its posterior border. After the muscles had been divided near their tendinous insertion, the head of the femur was exarticulated, and the soft parts divided as though a circular operation was being performed. The hemorrhage was controlled by manual compression and the arteries were ligatured without much difficulty. About three ounces of very thin blood was lost. The flaps which contained tissues of very doubtful vitality and which seemed bloodless, were now united by means of silk sutures and adhesive strips and

* I embrace this opportunity to return my thanks to Drs. F. W. Saunders, Chas. E. Stevens and A. Fuhrmann, for their efficient assistance during the operation.

† Since this paper was read, Mr. Furneaux Jordan has published a detailed description of an operation similarly performed, in the *London Lancet*, American Reprint, July, 1879.

oakum used as a dressing, with a wad of oakum as a drain in the outer and inferior angle of the wound. At the completion of the operation the patient seemed collapsed; the radial pulse could not be felt; breathing regular, however. Warmth was applied to the sound limb and trunk, and stimulants were administered, under the use of which he again rallied.

I will not trespass upon your time by giving a detailed account of the progress of the wound; suffice it to say that the longitudinal one healed by first intention, and the other was gradually closed by granulation. At present drainage is kept up by about a dozen horse hairs, and the patient walks about on crutches and has taken several rides on a wagon. He is steadily gaining in strength and in weight, and will, no doubt, completely recover.



Fig. 4.—The appearance of the stump. Nov. 29th, the wounds are entirely healed.

ARTICLE XXV.

IS PHTHISIS SELF-LIMITING? By WM. PORTER, A. M., M. D.,
of St. Louis, Mo.

[The reader's attention is first called to the following extract from a discourse read before the New York Academy of Medicine, May, 1879, entitled "Self-Limitation in Cases of Phthisis," by Prof. Austin Flint.]

It is now more than forty years since Jacob Bigelow applied the term self-limited to certain diseases. Quoting from his remarkable discourse, delivered before the Massachusetts Medical Society, in 1835, "By a self-limited disease, I would be understood to express one which receives limits from its own nature, and not from foreign influences; and which, after it has obtained foothold in the system, cannot, in the present state of our knowledge, be eradicated or abridged by art, but to which there is due a certain succession of processes, to be completed after a certain time; which time and processes may vary with the constitution and condition of the patient, and may tend to death or recovery, but are not known to be shortened or greatly changed by medical treatment."

Using the term self-limitation as expressing an intrinsic tendency in a disease to pursue a certain course, irrespective of treatment, its application has been much extended since the publication of that discourse, by the study of the natural history of diseases. A host of diseases have been shown to be self-limited. All the essential fevers, inclusive of acute pneumonia, and many acute inflammations, are, as the term has been defined, self-limited diseases. It was proved in 1863 that rheumatism or rheumatic fever, and in 1875 that acute dysentery belong to this category. If the term be used in a sense embracing different degrees of that attribute of disease which renders it independent of treatment, as regards course and termination, most diseases are more or less self-limited; and it is of interest to inquire in different diseases and in different cases of the same disease, how far the course and termination may be due to self-limitation.

One object in this discourse is to show that the favorable course and ending in certain cases of pneumonic phthisis are determined by self-limitation.

More than twenty years ago, in a paper published in the *American Journal of Medical Sciences* (January, 1858), it was claimed in behalf of this disease, that it may be self-limited. This claim was based on the results of an analysis of twenty-four cases which had ended in recovery. The claim was renewed in a pa-

per read before the New York Academy of Medicine, in 1863, and published in the Transactions of the Academy. It has since been reiterated, after the analytical study of a larger number of cases, in my work on the principles and practice of medicine, and in a more recent work on phthisis. If called upon, however, at the present time, to name a disease which does not exemplify self-limitation, perhaps pneumonic phthisis or pulmonary consumption would at once suggest itself in the minds of most physicians. Judging from the impressions derived, not alone from intercourse with medical practitioners, but from medical writers, of all diseases, this is one which is least expected to end favorably from an intrinsic tendency. If I mistake not, it is generally supposed to tend always to a progressive course, and cessation of its progress is considered as implying always some extrinsic agency by means of which it has been arrested. I propose to show the incorrectness of these views. But let me first inquire, what is necessary to establish the fact of the favorable course and termination of this or of any other disease being due to self-limitation.

A disease is, in this sense, self-limited when it ends in recovery irrespective of extrinsic influences derived from either hygiene or therapeutics. A patient, whatever be the disease, who recovers without any potential remedies or measures of treatment having been employed, and where there has been no material change in any of the circumstances pertaining to daily life, owes the recovery exclusively to self-limitation; in other words, the favorable course and termination are due to an intrinsic tendency. This intrinsic tendency may often be promoted by judicious treatment; and to endeavor to do this is a rational object of therapeutics. On the other hand, this tendency may be obstructed by injudicious treatment, a result which, of course, the physician endeavors to avoid.

Self-limitation cannot be inferred from a single case or a very few cases, for this reason: The course and termination of a disease may be affected by influences which are extrinsic but not apparent. In order to obviate liability to error on this score, the number of cases must be sufficient to render it extremely improbable that all such influences could have been overlooked. It is needless to say that the cases from which the inference of self-limitation is drawn must be carefully and honestly observed. Another condition is essential, namely, there must be no room for doubt as to the accuracy of the diagnosis.

The difficulties in the way of collecting cases of certain diseases, with a view to test self-limitation are obvious. If deliberately observed for this purpose, the physician must be able to reconcile to his conscience the proceeding. Assuming that he can do this, how seldom, in a disease like phthisis, could the concurrence of patients be obtained? Indeed, no phthisical patient would or should consent to comply with the conditions required for such an object of clinical study. The cases collected, there-

fore, must be those in which, independently of a deliberate purpose on the part of physician or patient, either the disease was allowed to pursue its course without any treatment, or the treatment was of such a character that no curative influence could be attributed to it. Cases in which these conditions are fulfilled are rare, but during a period of thirty-four years I have preserved the histories of a number amply sufficient to substantiate the statement that, in certain cases, pneumonic phthisis, or pulmonary consumption, ceases to be progressive, and may end in recovery from self-limitation.

The question will be asked: What meaning do you attach to the terms pneumonic phthisis and pulmonary consumption? I do not include under these names acute tuberculosis. This is a distinct disease. As justly remarked by Andrew Clark, from a clinical point of view it has more the characters of an essential fever than of a local affection. I exclude also the affections known as interstitial pneumonia, cirrhosis of lung or fibroid phthisis. Existing alone, this disease has characters sufficiently distinctive. I shall consider in this discourse the terms pneumonic phthisis or pulmonary consumption as applicable to all cases of phthysical disease, exclusive of acute tuberculosis or interstitial pneumonia, not raising any inquiry as to distinct forms of phthysical disease aside from the latter affections, and neither affirming nor denying their existence. With this understanding I proceed to the evidence of self-limitation in cases of pneumonic phthisis or pulmonary consumption, using instead of those names, the term phthisis, for the sake of brevity.

Of 670 cases of phthisis noted during thirty-four years, the list embracing a few cases of acute tuberculosis and interstitial pneumonia, 44 ended in recovery. In my work on phthisis, published in 1875, the details of the history of each of these 44 cases are given sufficiently to render evident the fact of recovery and the correctness of the diagnosis. I refer to this work for these details. In 31 cases the disease ceased to progress, remaining non-progressive for at least several months, and in the majority of the cases for several years. In these 31 cases the phthysical disease may be considered as ended, complete recovery from its effects, or the lesions incident thereto not taking place. As cases for analytical study, with reference to the agencies causing the cessation of the disease, these 31 cases of non-progressive phthisis are hardly less valuable than those in which there was complete recovery. Adding the two groups, there are 75 cases in which either recovery from phthisis took place or the disease ceased to progress.

Such a collection of cases offers a rich field for clinical study with reference to several points of inquiry having important bearings on prognosis and treatment. I shall take up here but one of these, namely, the proof of self-limitation. In how many of these cases is it evident from the histories that the disease was

not arrested by either medicinal or hygienic treatment? The answer to this question furnishes the proof of self-limitation.

Of the 44 cases ending in recovery, in 23 there was no medicinal treatment to which an arrest of the disease could be attributed. In several of these 23 cases there was no medicinal treatment; in the remainder of the cases the treatment consisted of simple tonics, cough palliatives, or remedies to meet some other symptomatic indication. In none of the cases could the treatment be considered curative. Of the 31 cases in which the disease was non-progressive without complete recovery, in 15 there was no medication by which it might be supposed that the disease was controlled, and in several none whatever. I call attention to the fact that in two groups of cases, namely, those ending in recovery and those in which the disease was non-progressive without recovery, medicinal treatment was either wanting or in no degree curative in about an equal proportion, being, in the first group, 23 of 44, and in the second group, 15 of 31. It may fairly be surmised that this fact has a significance beyond mere coincidence.

In respect of hygienic treatment, in some cases of both groups there was no change whatever in habits of life. In other cases there were changes involving more favorable circumstances pertaining to hygiene; but in a considerable portion these changes were not of such a character that a potential influence could be attributed thereto. It is probably correct to say that the changes may have favored recovery or non-progression, but were inadequate to cause an arrest of the disease.

In my work on phthisis, a history of each of the cases now referred to is introduced. To recite the histories here would require too much time. I will ask only those who may be so disposed, to examine them as contained in the work, for the correctness of the diagnosis, the recovery or non-progression, the duration of the disease, and other points of interest. I claim that these histories substantiate self-limitation in cases of phthisis. They show that this disease may cease to progress, and end in recovery, because it is self-limited.

I cannot cite authorities supporting this claim in behalf of phthisis. I am unable to refer to authors who have declared in distinct terms that this is ever a self-limited disease. That it is so in a certain proportion of the cases in which it ceases to progress and ends in recovery, is a logical conclusion based on the considerable number of histories to which I have referred.

The curability of phthisis is by no means a novel doctrine. Since the physical diagnosis of this disease has been brought to a demonstrative precision, all observers of much experience will agree that patients have recovered, even after considerable solidification of lung and the formation of cavities. Moreover, this fact has been abundantly demonstrated by post mortem examinations. But in all these instances the disease has been supposed

to be cured, sometimes by medicinal and sometimes by hygienic treatment, or by both combined. The position has not been taken by others, so far as I know, that the recovery in certain of the instances was spontaneous, that is, attributable to self-limitation.

My object in this discourse is to show that I have been warranted in taking this position by the facts to which I have referred.

[A Paper read before the St. Louis Medical Society.]

It is well known that at a recent meeting of the New York Academy of Medicine (May, 1879), Prof. Flint asserted his belief in the self-limitation of phthisis (*Arch. f. Med.*) This assertion was made so forcibly and sustained by such seemingly positive proof that it has thus far been received without recorded dissent. It being a subject of vital importance, with all respect for the learned author we will examine his position from his own standpoint, and cite the cases which he has noted. The deductions that follow will thus be made upon ground already chosen.

At the outset, however, I cannot but echo Andrew Clarke's just tribute to our author, for he is "one from whom I have learned much; one whose acute powers of observation, whose largeness of experience, deserve the warmest gratitude of every student of pulmonary pathology." We revere and honor Flint; therefore, we shall deal freely and directly with his conclusions.

Let us, then, gentlemen, receive the evidence purely upon its merits, forgetting, if possible, the high authority which we call in question. It is, moreover, right that a decision be reached in this matter, for if phthisis be self-limiting, this element must necessarily affect the result in no small degree; but if it is not, then must we look to therapeutic force and hygienic conditions for success.

What is meant by self-limitation? So far as our argument is concerned, the definition given by Prof. Flint is well adapted. "A disease is self-limited when it ends in recovery, irrespective of extrinsic influence derived from either hygiene or therapeutics."

We might almost rest our case here, for it will be at once conceded that the rule is that phthisis does not end in recovery, irrespective of extrinsic influence. To this rule there are few, if any,

exceptions—certainly too few to affect the question. To these exceptions, however, our author points, and says they “are amply sufficient to substantiate the statement that in certain cases pneumonic phthisis ceases to be progressive, and may end in recovery from self-limitation.” I will endeavor to prove to you, gentlemen, that phthisis is not, and cannot be, from its very nature, a self-limiting disease; and will ask you to examine with me briefly, first, whatever in the causation and pathology of phthisis relates to the subject; and, second, the clinical evidence adduced by Prof. Flint to substantiate his position.

Let us at the outset look for a working definition of phthisis. Flint, in the discourse mentioned, considers the “term pneumonic phthisis or pulmonary consumption as applicable to all cases of phthysical disease, exclusive of acute tuberculosis or interstitial pneumonia.” Very true. What, then, is phthysical disease? A wasting, a constitutional disease, “a progression of symptoms, characterized,” as Andrew Clarke has it (*N. Y. Med. Rec.*, Dec. 14, 1878,) “by an ulcerative or suppurative destruction of a more or less circumscribed non-malignant deposit in the lung.” The great factor back of all local manifestation is, then, the phthysical cachexia. Flint himself (*Prac. Med.*, p. 289), admits the pathological fact that the pulmonary invasion is “the local expression of a general or constitutional morbid condition, the latter being the essential disease.” He further says, “the great object of treatment, therefore, is the removal of this constitutional morbid condition or the tubercular cachexia. Measures addressed to the pulmonary affection are of secondary importance.” How, gentlemen, can we believe that pulmonary phthisis, the local manifestation, is self-limiting, when back of it we have the tubercular cachexia? The author having taught that phthisis is the local expression of a cachexia, yet self-limiting, the deduction must be that the cachexia—this tubercular cachexia—is self-limiting also; in other words, that this condition, with its sequences, has an “intrinsic tendency to recovery irrespective of extrinsic influences derived from either hygiene or therapeutics.” Is it any wonder that we turn from the *ipse dixit*, and call for proof ere we subscribe to this doctrine?

Let us glance at some of the causes of phthisis, and see if we can relegate to them a self-limiting tendency. Among these we have inheritability, age, climate, habits of life, poor food and exposure. Now, if from any of these causes—and these are the

principal ones—a man has phthisis, is it reasonable to expect a limit from intrinsic influence? And if the man recovers, the cause being removed, is it not to this rather than to self-limitation that the result is due? When a patient with an inherited tendency to phthisis is so strengthened as to resist the advance of the disease; or by care and prudence lives beyond the dangerous decade; or weakened by an effeminating, changeable climate, seeks a better one; or exchanges a hurtful occupation for one more favorable—there is a cause for the stay of the disease more tangible than “self-limitation.” To such a cause will we find most, if not all, recoveries from phthisis are due.

A few words regarding the pathological characteristics of phthisis. Here I cannot serve my purpose better than to again quote from Prof. Flint: “The fact to be especially borne in mind is that pulmonary tuberculosis is not primarily and essentially an affection of the lungs. The tuberculous products proceed from a prior morbid condition of the system. It is a rational inference that a vice of assimilation is involved in the existing cachexia.” Putting aside all disputed points as to the relation of true tubercle to phthisis (Prof. Flint using the terms phthisis and pulmonary tuberculosis in the same sense—*Prac. Med.*, p. 271), we have this succession which all admit—cachexia, mal-assimilation, pulmonary invasion. The latter impairs the respiratory function, and thus reacting upon the assimilative, the cachexia is further determined. The patient is thus inclosed in a morbid circle which can only be broken from without. Limitation must result from either repressing the cachexia, restoring assimilation, effecting retrogression of the pulmonary invasion, or all of these together. Tell me what is there intrinsic in this vicious circle which will cause it to break itself? The rather, each link becoming its own cause, grows stronger through the others, and without extrinsic influence the disease progresses. In the very nature of cause and effect it cannot limit itself.

If, then, what we know of the causation and character of phthisis is opposed to the idea of self-limitation, let us examine the clinical evidence adduced in support of this theory.

Prof. Flint, in his well-known work on Phthisis (1875), records 670 cases of this disease, among which were 75 in which either recovery took place or the disease became latent; and his recent paper is founded upon their histories. Now, gentlemen, it is to these 75 cases that we must look for all the proof that has been

given of the self-limitation of phthisis. By these, thus far, must the proposition stand or fall. We find that in 31 of these cases the statement is merely that "the disease ceased to progress for at least several months, and in the majority of cases for several years." By reference to the record we find that the last examination of each gave evidence that the disease was still present—latent in some, as may occur in phthisis, but not self-limited; for "a disease is self-limited when it ends in recovery," etc., and these had not recovered. As according to our author's own definition 31 of these cases have no definite bearing upon the point in question, we are restricted to the study of the remaining 44.

As self-limitation is independent "of extrinsic influence, derived from either hygiene or therapeutics," we at once decline the evidence of 21 of the 44 cases, for in all of these pertinent and generally persistent treatment was pursued. Moreover, *three* of these cases subsequently proved fatal, and the last examination showed that at least a third of them had still physical signs of phthisis. We object to these 21 histories as not pertinent. The interest now centers in but 23. "In 15 of the cases hygienic measures constituted the treatment;" but these measures were of such a character as would lead us to hope for favorable result, viz., change of business, out-door life, rest, sea voyages, change of climate, etc. These are potent aids, for as Flint says (*Prac. Med.*, p. 290), "out of door life is of all measures most important." Now, to prove a disease self-limiting, we must eliminate whatever can be reasonably traced to "either hygiene or therapeutics." These 15 cases were given the advantage of favorable hygienic condition, and who shall say they would have recovered without these conditions? Having made use of that remedy which of all others has been found efficacious in phthisis, these 15 cases are certainly not examples of self-limitation.

I have refrained from occupying your time with the details of the author's cases, which, in accordance with his own definition of limitation, have been refused as evidence. The history of these is fully given in his work on Phthisis, and I have endeavored to deal fairly and justly with the record.

Let us now apply the test to the 8 cases which alone remain. These are numbered 1, 4, 7, 8, 14, 20, 23 and 24 (*Phthisis*, p. 187, *et seq.*), and are the only ones of which the author says "there was no medicinal treatment of importance, and no material

change in the habits of life, the recovery taking place purely from an intrinsic tendency."

Case I is that of a farmer who, having in the winter of 1842-'43, expectorated what were thought to be pulmonary calculi, was examined in June, 1843; "the only physical sign noted was feebleness of the respiratory murmur." He was in excellent health 13 years after. "Prior to the development of the disease the patient had worked very hard on a farm. He left home for several weeks, and after relinquishing severe labor, engaged in buying and selling new lands in Illinois, a business which required much out of door life." Excellent treatment!

Case VII is that of a constable, examined in April, 1856. Six years before he had had a hemorrhage, and shortly afterwards recurrent hæmoptysis for ten days. During the following year Prof. Flint met this man from time to time on the street, and he seemed to be in good health. As this man evidently had phthisis for *six* years prior to examination, what reason is there, in the absence of a later examination, to suppose that he had entirely recovered during *one* succeeding year? The statement that he seemed well will apply, at times, to many cases of chronic phthisis. "There is no further record of this case. The treatment consisted of cod liver oil for six weeks; generous living, the use of malt liquors, and out of door life. Very good extrinsic influences, we take it.

In case XXIV we find that the patient consulted Dr. Flint by letter, in 1859; was relieved of part of her duties as a teacher; took more out of door exercise; traveled in the summer. In 1862 had abnormal dullness, feeble respiration, and increase of resonance and whisper at the right summit. Afterwards traveled in Europe; in 1868 had hæmoptysis; in 1869 increase of symptoms, and she died in the spring of 1871. Did this patient recover, and that without change of hygienic condition?

Case IV.—A physician, aged 28, had hæmoptysis in Oct., 1852, and again in January and May, 1853. In May, 1853, he had slight dullness at the right summit, with weakened respiratory murmur and crackling, which accompanied inspiration and expiration. In September, 1854, he reported himself well, "a year after recovery;" i. e., his recovery must have dated from September, 1853, five months only after the above symptoms were noted. However, we find that in September, 1854, there was

still "dullness at the right summit, and the respiratory murmur was feeble."

Case XIV.—A physician, who had cough, hæmoptysis and slight loss of flesh, was examined October, 1857, and found to have evidences of phthisis at the left apex. Five years later Dr. Flint saw him in apparently good health. He had been drinking beer, living generously, with an abundance of exercise out of doors. It seems that in this case and in number IV, no medicinal agent was used, though the patients were physicians. They both had the influence of riding and driving in the open air while engaged in country practice.

The three remaining cases do, so far as recorded, seem to be instances of recovery from phthisis without medical or hygienic agency.

Number VIII was a clerk, examined in August, 1856, having had cough two months previously and hemorrhage a week before. There was dullness and feeble respiration at the right apex and sub-crepitant râles on both sides. In October, 1856, he was reported well, and was in good health in 1871. The thought is at once suggested, why did he, being examined at a time of greatest danger, not have medicinal treatment? The case is, however, one of great interest, and is certainly an exception to the general rule, as the disease appeared, progressed and abated within a period of five months.

The other two cases, XX and XXIII, furnish the best evidence in favor of self-limitation, though the record is very short. Two sisters, whose parents, three sisters and two brothers, had died of phthisis, were found, one with disease of the left apex, the other of the right. No remedy of importance was given, or change made in the habits of life. Both were well 15 years afterward. Again the question may be asked, why was not some form of treatment or change of condition ordered in these cases, as "no effort had been spared to save the lives of their sister and brothers; traveling, changes of climate, together with remedies having been resorted to in vain, although, perhaps, with the effect of retarding the progress of the disease." With this, however, we have nothing to do. The record is that these two sisters for whom nothing was done, alone recovered. Granting that these two cases and the one and possibly the three preceding ones show evidences of self-limitation, yet, we again quote from

Prof. Flint's paper, "Self-limitation cannot be inferred from a single case or a very few cases."

Twenty years ago Prof. Flint advanced the idea of the self-limitation of phthisis (*Am. Jour. Med. Sci.*, 1858.) A year ago the question was ably reopened by the same author. The conclusions made, though much quoted, have not as yet, as far as we know, been indorsed by any of the many observers and investigators of pulmonary disease. Is it possible that in all this time all others have overlooked this most important element in the progress of phthisis, to which attention has so long ago been called? Does not the etiology, pathology and termination of phthisis plainly teach that without extraneous influence, phthisis is progressive, limited only by death? Clinical evidence is certainly opposed to the doctrine of self-limitation, for we find that even in the large experience of its only advocate, among hundreds of recorded cases, that this doctrine is sustained by but few, and in all fairness we confess a doubt as to the pertinence and value of most of these.

As Prof. Flint has placed the evidence before us, it is the right and duty of every physician to examine it, and to judge for himself. If phthisis is self-limiting, let it be proven so, for with the assertion comes the *onus probandi*. As yet we must believe that self-limitation is not an element in the character of the disease.

Though unwilling to admit that there is an intrinsic tendency in phthisis to recovery, yet we should not lose sight of the fact that many cases of phthisis respond to judicious treatment and hygienic conditions. In truth, in no other disease is careful scrutiny and constant care more necessary or better rewarded. Even were self-limitation ten times proven, it should not lessen the vigilance and attention which such cases demand. In all cases of phthisis two forces are at work—one aggressive and morbid with (as we believe) a direct tendency to death; the other defensive and systemic, opposed to and retarding the progress of disease. Whatever method of treatment is pursued, it and everything connected with it should tend to the building up of the system and the increase of the powers of resistance to disease. In this we believe is the true limitation of phthisis.

Reports on the Recent Progress of Medicine.

VENEREAL DISEASES.

BY LEGRAND ATWOOD, M. D., Collaborator for the JOURNAL.

RAPID CURE OF SYPHILIS BY SALIVATION.—In the *London Lancet*, Dr. Jonathan Hutchison reports a case of secondary syphilis in a female, the whole surface being covered with a scaly and papular eruption. After the third mercurial bath she was severely salivated. She was confined to bed for a week or two, during which time the disease entirely vanished. It was the most rapid cure of severe secondary eruption the doctor ever knew. —[*Pac. Med. and Surg. Journal*.

METALLIC MERCURY IN SYPHILIS.—Dr. Furbringer, in the *Archiv. für Klin. Med.*, recommends the hypodermic use of metallic quicksilver in syphilis. His formula is:

R	Hydrarg depur.....	2.0
	Musilag accacia.....	10.0

Rub well together and gradually add

Glycerin puris.....	10.0
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This makes a permanent emulsion, not readily oxydizable. The absorption of mercury in this form is very gradual and efficient. About half a syringe-ful (= 0.05 metallic mercury) is an average dose.—[*Med and Surg. Rep.*

CHRYSOPHANIC ACID IN SYPHILIS.—In connection with internal specific treatment, Dr. Renmont of Aix la Chapelle recommends this formula for local application in obstinate syphilides of the face and hands:

R	Chrysophanic acid.....	1 to 2 parts,
	Ung. petrolie.....	10 "

M. Sig: Apply once every day or two days.

It is especially valuable in psoriasis syphilitica.—[*Med. and Surg. Rep.*

SYPHILIS OF THE CENTRAL NERVOUS SYSTEM.—At a recent meeting of the Königsburg Association for Scientific Medicine (*Berliner Klin. Wochen.*, 1879, p. 407), Dr. Naunyn spoke upon this subject. Out of sixty cases to which he referred, where the history of the patients had been accurately noted, eight had been examined post mortem. No exostoses (which during life are so frequently set down as the cause of brain symptoms in syphilis) were found. On the other hand, gummata in the brain substance, subdural gummata softening as a sequelæ of endarteritis, with or without consecutive thromobosis and simple softening were ascertained to be present. Brain symptoms frequently belong to the earlier manifestations of the disease. Naunyn has frequently seen it within the first year. Heubner's assertion, that intellectual and particularly active men were particularly liable to this form of disease does not appear to be borne out by Naunyn's experience. In general, it may be said that young persons are particularly liable to brain syphilis. That there are any specific peculiarities about the disease excepting the paralysis of the ocular muscles and pain in the head, Naunyn cannot admit. The only characteristic point is that the usual symptoms occur in the young instead of the old. An important diagnostic point is the absence of symptoms pointing to compression (*staunungspapilla*, etc.). The usual symptoms are those pointing to a center of disease; hemiplegia was common in Naunyn's cases, together with paralysis of the ocular muscles in many instances, which, as is known, rarely occur in ordinary hemiplegia. Epilepsy is not uncommon. Charcot's assertion that hemi-epilepsy is particularly characteristic of syphilis is not borne out by Naunyn's experience. He has *never* seen a case. Paraplegia occurred in eight cases out of the sixty; once the group of symptoms pointed to a hemiplegia spinalis. The prognosis of brain syphilis is, according to Naunyn, always doubtful. The number of cases which entirely recover is very small. In any case, however, the prognosis is more favorable than when the same symptoms are due to any other cause. Naunyn uses mercurial inunctions and only employs iodide of potassium occasionally. —[*Phil. Med. Times*.

EARLY ANTISEPTIC TREATMENT OF BUBOES.—Wagner (Cbl. f. chir. 1879, No. 34, from *Breslaner Aerze Zeilschr.*) recommends as the result of his experiments, the early opening of buboes with

careful observance of Lister's antiseptic method, provided the diagnosis is clearly made out of an actual inflammation, not merely an enlargement of the glands. Wagner not only recommends all buboes to be taken out which are suppurating, but even those which are much swollen. The result is extraordinarily satisfactory.—[*Phil. Med. Times.*, Oct., 1879.

SYPHILIS IN JAPAN.—Previous to 1869 the percentage of cases admitted to hospital for syphilis in Yokohama, was 24.4; in that year legal preventive measures were enforced, and since then the admissions have been reduced to about 11 per cent. The Japs approve of preventing this disease by legal sanitary measures; so do the French, English and Germans. The Utah Indians, Hottentots and citizens of the United States do not; they think it would interfere with the liberty of the individual or else would be immoral.—[*Med. and Surg. Rep.*

SYPHILITIC NEURALGIA.—It should be borne in mind that some cases of obstinate neuralgia are of syphilitic origin. Dr. Higgins recently reported one to the Toledo (Ohio) Medical Association. It was of a man suffering from pain in the right sciatic nerve, recurring periodically every day at the same hour. He treated it with quinine and anodynes for ten days, when he remembered that he had treated the same man some years previously for syphilis, the symptoms being hyperæsthesia of scalp, nocturnal pain and tibial node. The patient had had a sore twenty years before. There was no paralysis. He put him on the iodide of potassium, which relieved him within four days.—[*Med. and Surg. Rep.*

GELSEMINUM IN GONORRHEA.—In the *Western Lancet*, Dr. J. Sullivan extols gelseminum as an unfailing remedy in the early stage of active gonorrhœa. The fluid extract should be given four times a day, after meals and at bed time, beginning with six or eight drops and increasing two drops every dose up to twenty drops, or until the patient experiences the peculiar intoxication, when it should be continued in smaller doses, as much as can be easily tolerated for a few days, or till the discharge becomes lighter or disappears. An eighth of a grain of morphia is sometimes advantageously added to each dose. Saline purgatives, rest and abstinence are essential parts of the treatment. After the acute stage has passed, copaiba and the oil of sandal wood will soon complete the cure.—[*Med. and Surg. Rep.*

Translations from the German.

PATHOLOGY AND THERAPEUTICS IN OPHTHALMOLOGY. [Taken from Prof. NAGEL'S *Jahresbericht ueber die Leistungen und Fortschritte im Gebiete der Ophthalmologie.*] By S. POLLAK, M. D., Surgeon to the Eye and Ear Infirmary of the St. Louis Hospital. Translated for the JOURNAL.

BAUCHERON (*Gaz. Hebdomadaire de Med.*,) on account of the quite natural dread of a hideous disfiguration, desires to substitute *neuratomy of the optic and ciliary nerves for enucleation* of the bulb in all cases of sympathetic ophthalmia where and whenever the latter may be indicated. He never performed it on human beings, but only on dogs, rabbits and cadaver, in the following manner: Divide the conjunctiva and the capsule of Tenon about one centimeter from the corneal margin, between the rectus superior and rectus exterior; penetrate with scissors, bent on the flat, between the bulb and the capsule of Tenon. Seize the bulb with a tenaculum, near the cornea; draw it out and put the optic nerve on a stretch, and divide it as well as the ciliary nerves and post ciliary arteries. The hemorrhage is only a trifle. In order to be sure that the ciliary nerves have been divided, the incision in the capsule of Tenon needs to be enlarged, the sclerotic seized with another tenaculum, then by a slight rotation the entire posterior surface of the bulb can be brought into view and completely inspected. Experiments on animals convinced him that there is no danger of suppuration; cornea and media remain clear. Clinical experience taught the same results after injuries of the optic and ciliary nerves. Schweigger has also recently advocated the same proceedings, (though it must not be forgotten that divided, or even excised nerves, frequently unite again, and thus may fail in attaining the object of the operation.)

SAVARY (*Ann. d'Ocul.*) mentions a case of sympathetic ophthalmia, caused by *ossification of the choroid* of the other eye.

HIRSCHBERG (*Arch. f. Ophth.*) gives an accurate anatomico-pathological description of four enucleated eyes, which had caused sympathetic ophthalmia.

I.—A man on whom, ten years previous, extraction of a calcarian cataract had been performed, with the total loss of sight. The other eye suffered from violent neuralgia, which subsided after enucleation of the blind eye, the autopsy of which revealed a detachment of the posterior part of the ciliary body and the anterior part of the choroid from the sclerotic, and a funnel-shaped elevation of the retina from the choroid. There was an abundant incrustation of calcarian matter on the posterior part of the retina, and a beginning of ossification of the choroid.

II.—A girl æt. nine; right eye injured by a knife, and followed eight months later by sympathetic irido-cyclitis. Only tardy improvement of the sympathetic ophthalmia followed the enucleation of the right eye. Autopsy demonstrated detachment of the ciliary body from the sclera by a gray translucent neoplasm and swelling of the papilla.

KNIES (*Arch. f. Ophth.*) report of the result of his anatomical examination of glaucomatous eyes has attracted universal attention. The autopsies of fifteen forms of *glaucoma* are given. As important and constant results are cited the changes in the region of the space (canal) of Fontana; the periphery of the iris is adherent to the membrane of Descemet; the space of Fontana is obliterated, and the surroundings all cell-infiltrated.

This obliteration of the space of Fontana has been noticed before, and supposed to be caused by increased tension. That it is not a mere mechanical pressure of the periphery of the iris or the cornea is demonstrated by the presence of an intervening adhesive substance. An inflammatory process must therefore be assumed, which accounts also for the infiltrations adjacent to the canal of Schlemm; sometimes also of the corpus ciliare, and of the sub-conjunctival tissue. An inflammation in the sclero-corneal region, where the chief outlet of the aqueous fluid of the eye is supposed to be, must necessarily increase ocular tension. In the obliteration of the space of Fontana, Knies accounts for all the cardinal symptoms of glaucoma, the haziness and anæsthesia of the cornea, iridoplegy, the flattening of the anterior chamber, the limited accommodation, and the venous scleral hyperæmia. Without insisting that glaucoma is only an obliteration

tion of the canal of Fontana, he maintains that the changes in the surroundings of the canal of Schlemm constitute some of the main features.

SCHWABEL (*Arch. f. Aug and Orenh.*) develops in an able manner his views of the pathology of *glaucoma* and the effect on it of *iridectomy*. He sets out from the fact that the glaucomatous turbidity of the refracting media is caused solely by an opalescence of the cornea; a turbidity in the corpus vitreus is not demonstrable.

The opalescence of the cornea is central, superficial; leaves the epithelium intact; never suppurates; disappears suddenly, certainly after *iridectomy*, without subsequent haziness. During its existence colors of the rainbow are seen.

(This must be differentiated from another periodical obscuration for which the eye furnishes no objective cause, and which does not improve after *iridectomy*.)

The above mentioned periodical haziness of the cornea is not of an inflammatory nature, but must be considered as a consequence of a *neurosis* of the secretion. Pains in *glaucoma* are not the expression of an inflammatory process; they come and go quite suddenly; they appear occasionally in advance of inflammation; they may even precede a *glaucoma*; they must be regarded as a simple neuralgia. Even in inflammatory *glaucoma* pains are manifestations of an independent neurosis. Increased tension is not pathognomonic of *glaucoma* alone. Excavation of the optic papilla may occur without an increase of tension of the bulb.

As to *iridectomy*, it does *not* change the intra-ocular pressure in the normal eye; it increases the inflammation in an inflamed eye, and leads often to disastrous results. But when one sees how promptly, as if by magic, pains, turbidity of cornea and tension are relieved by *iridectomy* in a glaucomatous inflamed eye, the conclusion is irresistible, by analogy at least, that it acts like neurotomy in neuralgia.

He concludes that *glaucoma* is necessarily a neurosis of the fibers of the trigeminus, but whether the sympathetic is implicated is yet doubtful.

LIAQUEUR (*Centrbl. f. d. Med. Wiss.*) makes a communication that he discovered in *physostigmin* the property of *reducing* the *pathologically increased tension of the eye*.

After a repeated application of a four per cent solution, he noticed a gradual reduction of the tension of the bulb, which led to no small improvement of all its functions. Based upon the observation in six cases, he recommends physostigmin or eserine in glaucoma simplex; in all cases where an iridectomy had been made, without inducing a relaxation; in secondary glaucoma, without synechia. The rationale lies in the direct stimulation of the smooth muscular fibers of the choroidal vessels.

WEBER (*Arch. f. Ophth.*) publishes his experience of the therapeutic value of *physostigmin* or *calabrin* in various diseases of the eye, which he says increases the tension in the vitreous space and diminishes it in the anterior chamber. Calabrin acts in direct antagonism of atropia, which in a healthy eye lowers the tension in the vitreous space and raises it in the anterior chamber. He therefore recommends physostigmin in keratocele, in conical cornea, in ulceration of the cornea, as highly advantageous.

In glaucoma, he found physostigmin very useful, and explains its effect, that by the contraction of the pupil the detachment of the ciliary margin of the iris from the periphery of the cornea is effected, and the filtration of the fluids of the eye through the canal of Fontana is rendered possible, and thus tension is diminished.

WECKER (*Arch. f. Ophth.*) recommends *drainage* as a remedy to promote filtration of the humors of the eye in certain cases of glaucoma. It is indicated in cases where iridectomy would be difficult and dangerous, as in glaucoma absolutum with atrophied iris; in hemorrhagic glaucoma; or where tension did not sufficiently yield to a well performed iridectomy. The relaxation after introduction of the gold drainage-thread is permanent, though it may have been left in a short time only.

ARGYLL ROBERTSON (*Ophth. Hosp. Rep.*) recommends *trepthing* of the sclerotic in glaucoma where iridectomy may not be practicable or had not been successful. He removes a circular piece 1 mm. in diameter in the region of the posterior origin of the ciliary processes. He uses Bowman's corneal trephine for that purpose. The hiatus is generally filled up by a new loose texture which acts like a safety-valve against a renewal of the intra-ocular pressure. He performed the operation three times; however, one only was permanently successful.

FIEUZAL (*Clin. Ophth.*) tells of a case of "glaucoma fulminante" which manifested itself on the right healthy eye on the very day when iridectomy had been performed on the left eye for glaucoma. He considers it justifiable in a monocular glaucoma to iridectomise both eyes, the healthy one prophylactically.

FÖSTER (*Greefe-Sæmish*) thinks that severe debilitating constitutional diseases may cause acute and subacute glaucoma. He saw it succeed intestinal catarrh, vesical catarrh, pneumonia, erysipelas, typhoid fever, excessive venery. To great debility and moral depression, not to sympathy, is the sudden appearance of glaucoma in a healthy eye to be ascribed, almost on the day when an operation had been performed on a glaucomatous eye.

NETTLESHIP (*Lancet*) reports two cases of glaucoma on which *sclerotomy* was performed.

In one case iridectomy had been repeatedly made, with but negative results. Sclerotomy was so far successful that for seven months the patient was free from pain, and tension never attained its former degree again.

In the second, sclerotomy was performed on a blind glaucomatous eye. Here also pain and tension were permanently relieved.

BADER (*Ophth. Hosp. Rep.*) reports also four cases of sclerotomy in glaucoma, with good results. He is so much encouraged by the favorable effect of sclerotomy that in the last three years he performed it in preference to iridectomy, even in place of enucleation. Reduced tension and intraocular pressure are the results. It should be made upwards, corresponding to the insertion of the iris. The scleral section should occupy one-third of the periphery of the cornea. Greefe's small knife for the right eye, and a curved cataract knife for the left eye, are the best. The only objection to the operation is the easy subsequent formation of staphyloma, which may require surgical interference. However, this is not a real staphyloma, but a prominence of the conjunctiva, with more or less protrusion of the iris.

HUTCHINSON'S (*Brit. Med. Jour.*) remarks on glaucoma as a *neurosis* are new and interesting. He finds that there is a close analogy between glaucoma and a *contraction of the fascia palmaris*, a disease mostly met with in the aged. This latter shows itself

usually at the base of the ring and little finger. Fascia and sink unite with each other, and cause flexion of both fingers. This affection begins in one hand, but later the other is affected in the same way. *It is incurable.* He sees therein an analogy to a *chronic contraction of the sclerotic*, and considers both an expression of a deep-seated neurosis. He corroborates his theory with a case where there was glaucoma absolutum, with deep anterior chamber, contraction of fascia palmaris of both hands, and a whole series of other nervous symptoms—pain in the occiput, atrophy of the right arm, insomnia, general fatigue, and mental lassitude.

EXCERPTS FROM LATE GERMAN JOURNALS. [Translated for the JOURNAL.] By Dr. A. H. OHMANN DUMESNIL, of St. Louis.

PARALBUMIN.—Dr. Vulpinus gives a method of determining the presence of paralbumin in fluids derived from cysts (especially ovarian) or serous cavities, remarking that its presence or absence has not, as yet, been proven of much value as a diagnostic symptom or as a method of differentiation. The method consists, essentially, of taking about 100 grms. of the fluid, filtering it, and adding to it about six times its weight of distilled water. If the fluid is too thick to be readily filtered, a part of the water may be previously added to it. In case it cannot be filtered after this treatment, it should be allowed to stand quiet for a time, and the clear liquid be carefully decanted. Through the solution thus obtained a current of washed carbonic acid gas is passed. A white flocculent precipitate shows the presence of paralbumin in the fluid. The addition of distilled water is indispensable, as solutions of the fluid give no reactions when undiluted, and immediately give marked indications upon its addition.

Another method of testing for the presence of paralbumin is to take a part of the filtered fluid, add to it three times its volume of absolute alcohol, and allow it to stand. After twenty-four hours the precipitate that has formed is collected, dried between sheets of absorbent paper, and dissolved in fifty times its weight of distilled water, at 50° to 60° C. The solution thus obtained gives a precipitate, upon adding a solution containing a thousandth part of acetic acid, if paralbumin be present. It is further possible to distinguish paralbumin from metalbumin in

this solution by adding sulphate of magnesia. In this case the former produces no precipitate, whilst the latter does.—[*Arch. der Phar.*, Oct., 1870.

INFANTILE PARALYSIS.—Dr. Ehrenhaus, of Berlin, at a meeting of Physicians at Baden Baden, spoke of a case of a child two and a half years old, who fell ill, and on the third day the mother observed that it had some difficulty in moving the right arm. Three days later there was left facial paralysis, and also of the right arm, especially in the upper arm. The arm did not respond to electric stimuli, whilst the face did. The sensibility was intact. A slight contraction of the fingers of the right hand was observed.

The facial paralysis disappeared in three weeks without treatment, but that of the arm could only be subdued by long continued exercise and applications of electricity.

The author concludes that there was spinal derangement (as manifested in the paralysis of the arm) and complicating it some acute cephalic disorder (as shown in the facial paralysis and contraction of the fingers.)—[*Centralblatt für Nerven h. k., Psychiat. und Gericht Psycopath.*, Oct., 1879.

VARIOLA AND VACCINATION.—Prof. Bohen, of Königsberg, made a very interesting address on variola, vaccination, inoculation, etc., at a meeting held at Eisenach. Among other things, he mentioned the presence of variola in man, goats, sheep and hogs, which produces an eruption, accompanied with fever and affections of the mucous membranes, whilst that occurring in cows and horses is a mere local disease. The first group, besides the contagion effected by the virus, produces fomites, whilst in the second group the immediate transmission of the virus is necessary for the propagation of the disease.

It has been frequently and long observed that cow-pock and horse-pock were inoculated on man, but sheep-pock has only been transmitted by direct and artificial methods.

The cow is predisposed to inoculation with human, equine and ovine virus.

The horse and ass have been successfully inoculated with bovine, humanized and pustular virus. Ovine virus has had no effect.

Sheep are readily affected by bovine and equine virus, but have little susceptibility to the human.

Goats are susceptible to the lymph of the sheep and hog, and reproduce it.

Hogs can be inoculated with human, ovine, etc.

The first transmission of a foreign virus is often unsuccessful, or produces doubtful results, so that it appears that there is a natural resistance which is to be overcome by acclimatizing the virus previously. In the same species, however, the propagation is easy.

In all cases, however, human and animal virus can be reciprocally and successfully inoculated. There is a law by which man has a susceptibility, in common with some other diseases, of contracting variola but one in a lifetime. The practice of inoculation in the past year has proven that the disease, artificially induced, is as competent to insure this further immunity. These laws are equally applicable to the inferior animals. Equine or bovine virus received by accident or intentionally have proved to be of the same value as variola as a future protective. Ovine virus is also a guarantee against variola, and destroys further susceptibility to vaccination.

Cattle that have been inoculated have no longer any adaptability to the reception of equine, ovine or bovine virus. Sheep enjoy the same immunity after an inoculation.—[*Aerztliches Vereinsblatt*, Sept., 1879.

Translations from the French.

EXCERPTS FROM LATE FRENCH JOURNALS. [Translated for the JOURNAL.] By Dr. A. H. OLMANN-DUMESNIL, of St. Louis.

DISLOCATION OF THE HEAD OF THE FIBULA.—At the Surgical Society of Paris, M. Tillaux reported a case of a soldier who, while drilling, had this accident. It was not due to muscular action, but, probably, in advancing, he forcibly adducted it. In

this movement, the ligaments of the head of the fibula probably were ruptured and caused it to be displaced backwards.—*Lyon Médical*, Oct. 19th, 1879.

TRANSVERSE INCISION IN THE VELUM PALATI FOR THE REMOVAL OF NASO-PHARYNGEAL POLYPI.—M. Boekel, of Strasbourg, has employed this method four times as a preliminary operation in the removal of naso-pharyngeal polypi. This incision, from two to three centimetres long, permits the operator to see a part of the pharynx and the base of the skull. During the removal of the polypi, the blood, instead of flowing in the throat, rather makes its exit through the nose. The tumor being removed the wound in the palate is brought together by means of a suture, the union being generally by first intention. The author has seen these wounds heal rapidly without sutures. The incision is made with a bistoury or thermo-cautery.—*Ibid.*

TREATMENT OF ACUTE PLEURISY WITH JABORANDI AND PILOCARPINE.—M. Bonchet, in his clinic at the Childrens' Hospital, related the following cases occurring under his observation:

Case 1, a little girl, aged five, whose parents died of phthisis, had marked symptoms of acute pleurisy. Two days after her admission she was given three grms. of infusion of jaborandi, daily; light diet. In a short time the effusion had disappeared and the day after its disappearance the patient was discharged.

Case 2, a girl aged fourteen, who last October had typhoid fever with right pleurisy, was discharged cured in December. Some time ago she was taken with pains in the right side, fever and felt generally broken up. On August 30th she was given jaborandi, 1 gm., and a hypodermic injection of .01 gm. of nitrate of pilocarpine on the abdomen.

Aug. 31—Injection of .01 gm. The effusion is diminished.

Sept. 1—Hypodermic injection of .0075 gm. of nitrate of pilocarpine.

Sept. 2—Infusion of jaborandi, 1 gm.

Sept. 4—.0075 gm. pilocarpine, hypodermically.

Sept. 6—.0050 gm. pilocarpine, and infusion of jaborandi, 1 gm.

Sept. 7—Pilocarpine stopped and jaborandi continued.

Sept. 12—All medication stopped.

Sept. 24—Patient discharged as cured.

Case 3, a little girl aged ten; is strumous, presented symptoms of subacute pleurisy. She was of a debilitated constitution and the diagnosis most difficult to establish. She was given two grms. of infusion of jaborandi daily, and rapidly recovered.—*Paris Médical*, Oct. 16, 1879.

THE SALIVA PRODUCED BY THE ACTION OF JABORANDI.—M. Valpian reported to the Academy of Sciences, that the saliva secreted by patients under the effect of jaborandi and who had albuminuria, contained three times as much albumen as that of healthy individuals. These observations have been confirmed by experiments conducted by M. Strauss.—*Progrès Médical*, Oct. 11, 1879.

STROMA OF RED BLOOD CORPUSCLES.—M. Houel, at the Biological Society, remarked that when a thin layer of dried blood is washed with distilled water, the corpuscles are not dissolved, the water only carrying away the hæmoglobin. He further stated that when a thin layer of blood is dried in the air, the red discs roll themselves the same as they do in a wet preparation. The diameters of these corpuscles are measured with a micrometer and the layer is then washed with distilled water, which is allowed to run off slowly. The hæmoglobin is carried away, whilst the decolorized corpuscles remain behind on the glass slide. Iodinized water is then poured over it and on examination it can be seen that none of the corpuscles have disappeared. The red ones, deprived of their hæmoglobin, are reduced to a thin pellicle colored yellow by the iodine, and having a double contour. By the aid of the micrometer it can be readily seen that they have preserved their dimensions and form. The highest powers of the microscope fail to show the presence of any structure in this pellicle, which has no nucleus, filaments or granular matters. This permits us to consider the pretended *stroma* as a thin pellicle of protoid nature, insoluble in water and forming an external membrane to the red blood corpuscle.—*Ibid*, Oct. 18, 1879.

DEFORMED PELVIS A RESULT OF AMPUTATION.—Dr. Brochin relates the following case, occurring in the hospital under Dr. Dumas, at Montpellier. A young woman, aged 19, who had the right thigh amputated when three years old, entered the hospital in December, 1873, to be delivered. On examination the pel-

vis appeared normal. The pregnancy had been quite natural and she was easily and safely delivered. In a few days after delivery she had rigors, general pain, and soon died of peritonitis.

The post mortem examination showed the following anomalies in relation to the pelvis:

1. The total height of the pelvis is much diminished on the right side.

2. The false pelvis is enlarged transversely by the sinking outwards of the left ilium, and the distance between the two anterior superior spines of the ilia is greater than that taken at the middle joint of their crests, which is the reverse in a normal pelvis.

3. The superior strait has all of its diameters more or less increased and this is greatest in the left oblique. The circumference is greater than normal, the right half being the longer; the curve being irregular at various points and the plane of the straits being inclined to the right.

4. Two diameters of the excavation are notably increased.

5. The diameters of the inferior strait are slightly diminished.

6. The right catyloid cavity is markedly atrophied as also the whole corresponding half of the pelvis.

These are changes more especially interesting to accoucheurs, who will readily perceive all the complications that may arise from such deformities.—*Gazette des Hôpitaux*, Oct. 18, 1879.

CONSERVATIVE TREATMENT OF SYMPATHETIC OPHTHALMIA.—

M. Bouchet observes that sympathetic ophthalmia is most probably produced by transmission through the ciliary and optic nerves and proposes the section of these nerves as a substitute for the enucleating method. The operation was successfully performed on dogs, cats, and even rabbits, experimentally, the eye whose nerves had been cut, being retained.

The operation consists in making a slight incision in the conjunctiva, severing the tendon of the external rectus muscle, and passing behind the eyeball with scissors sharply curved on the flat. The eye being drawn forwards and turned inwardly, the optic nerve is put on the stretch, seized between the blades of the scissors and cut, together with the ciliary nerves. The eye is rotated still further in the same direction for examination to

insure the section of all the nerves, then the muscle is replaced, sutured, and an antiseptic dressing employed.

Optico-ciliary neurotomy, as the author calls it has been performed in more than 40 cases successfully, and is an acquisition to conservative surgery.—*Ibid*, Oct. 21, 1879.

PLEURISY AND PURULENT PERICARDITIS IN A CHILD TWO AND A HALF MONTHS OLD.—The child was born with the aid of forceps, the rotation of the head being affected with difficulty, and the labor lasting thirty-one hours. Two days after birth it was vaccinated; this was on March 15th. On May 9th, following, an erysipelatous spot was developed on a level with the crust on the vaccinated arm. On the 13th the erysipelas enveloped the whole arm and hand, and after some time, the left shoulder and part of the thorax. On June 1st it had all disappeared. On the 7th the child was extremely pallid, had blueness of the lips and considerable dyspnœa; also a high fever and weak pulse. The heart sounds were muffled, with complete dullness over the right lung, anteriorly and posteriorly. The vesicular murmur was absent, there being rude respiration at the apex and posteriorly. There being considerable effusion with imminent asphyxia, aspiration was resorted to. When 30 to 40 grms. of a serous pus had been drawn, the asphyxiating needle was clogged, and before anything more could be done the child died. The post mortem examination revealed the right pleural cavity completely lined with false membranes of recent origin. The pericardium was filled with a purulent liquid, analogous to that found in the pleura and amounting to about 35 grms. False membranes were also present. The heart and other viscera were normal.—*La France Médical*, Oct. 11, 1879.

CAUSES OF ERROR IN THE SUGAR TEST OF URINE.—M. Jolly has communicated to the Society of Practical Medicine, the following:

Barreswill's, Fehling's and other cupro-alkaline solutions, if more or less diluted, undergo a spontaneous decomposition, as was shown long since.

Besides this, it is necessary to abstract certain organic matters in the urine, which have a reducing action on salts of copper and which, on that account, might lead us into error. To effect this a small quantity of sub-acetate of lead is first added to the

urine and the precipitate separated by filtration. The excess of lead in the filtrate is separated by adding *pure* sodium carbonate. The filtrate is then tested for glucose, the presence of the sodium carbonate having no influence on the test.

This salt, however, must be chemically pure, as the commercial article contains impurities having also a reducing action on salts of copper. What these impurities are the author has not been able to determine, as a variety of experiments with pure sodium carbonate, to which the impurities occurring in the commercial article were added, did not act in the same manner. The observation holds good, however, and to obviate errors, the course detailed above should be pursued.—*Ibid*, Oct. 22, 1879.

Translations from the Spanish.

[Translated for the JOURNAL.] By Dr. A. H. OHMANN-DUMESNIL,
of St. Louis.

FILARIA IN THE VITREOUS HUMOR.—Dr. Fernandez in a paper on this subject remarks this entozoön is a filiform neumatoid worm which, when in the interior of the eye, has been found to vary from 15 to 50 mm. in length, and to be not larger than the finest hair. The male has not as yet been found, the female is oviparous. The cases on record of filaria in the eye are not rare. The following is a record of a case occurring in his practice :

Felix Levi, an Italian æt. 34, having lived eighteen years in Cuba, presented himself on August 7th, 1868. He was of a bilio-nervous temperament, with a good constitution, and no specific disease or diathesis. He said that he had for fifteen days, and without apparent cause, a cloud in his left eye somewhat similar to a worm three fingers breadth in length, and of the thickness of a thread, it being of a black color. He had no pain or other inconvenience, except a slight amblyopia occasioned by this cloudiness. Not paying much attention to the description of the patient, and taking it for an ordinary opacity

of the vitreous humor, an examination with the ophthalmoscope was next made.

With the simple reflector two black points and a whitish opacity (which disappeared between different observation and which was taken for an optical illusion) were discovered. The diagnosis was about to be pronounced as simple opacities of the vitreous humor, when the patient asked, "Will you please tell me what kind of an animal I have in my eye?" This aroused a doubt which resulted in a more protracted and careful examination. After a great deal of trouble, a small worm with undulating movements, similar to those of a reptile, was seen passing through the vitreous humor. It was recognized as a filaria, and its presence verified on several occasions both by the author and by other medical gentlemen.

The patient was ordered frictions with mercurial and belladonna ointment, and internally, arsenic, August 28. Having pursued this treatment, he had a slight iritis and was ordered atropine.

Sept. 1.—Sees but little with the left eye; convex lenses aid somewhat, but he can still only read the first letters of the scale. There are large opacities in the vitreous humor and points on the anterior surface of the lens due to the iritis. A suspicion of some former specific disease again prompted a careful and searching cross-examination, into the history of the patient, with no result.

Sept. 15.—Under proper treatment the opacities have disappeared in a great measure; he can see better and read No. 3.

Dec. 23.—Says he sees less clearly. On dilating the pupil and examining, opacities in the forms of membranes can be distinguished and these lie in the line of pupil. No filaria can be seen.

April 30, '79.—Sees much better; on examining with the ophthalmoscope the opacity of the vitreous humor still exists but very much reduced in volume. Since this date the patient has not been seen. (*Cronica Medico-Quirurgica de la Habana*, October, 1879.)

NEW PLAN OF MEDICAL STUDIES.—The following is the plan that will be pursued in the Island of Cuba, in regard to medical studies; and the projectors think it will equal that pursued in Spain.

First Course.—Descriptive Anatomy, Physics, General Chemistry.

Second Course.—General and Special Histology, Physiology, Special Hygiene, Natural History.

Third Course.—General Pathology and Therapeutics.

Fourth Course.—Medical and Surgical Pathology, Obstetrics, Surgical Anatomy and Operations.

Fifth Course.—Medical and Surgical Clinics (1st course).

Sixth Course.—Medical and Surgical Clinics (2nd course).

Medical Jurisprudence, Obstetric Clinics and Public Hygiene will be studied by the students during the last two years.—(*Ibid.*)

Translations from the Italian.

[Translated for the JOURNAL.] By Dr. A. H. OHMANN-DUMESNIL,
of St. Louis.

PROPHYLAXIS OF VENEREAL DISEASES.—Dr. C. Patamia in an article on the above, reviews at length all the evils encountered, both in contracting these diseases and in being treated by irresponsible parties and the necessary precautions that ought to be observed, and concludes with the following propositions to ensure a comparative immunity for individuals and communities:

1st. To have popular instruction on the nature of venereal diseases; to found a work-house; to have fines and imprisonments enforced.

2nd. To augment the visits to prostitutes; to sequestrate them as soon as possible after the discovery of their infection.

3d. To appoint a sufficient number of physicians to ensure a thorough and attentive examination in each case.

4th. To establish a dispensary in every community, and a special hospital in every province.

5th. To oblige physicians in charge of hospitals, and (if possible,) the clergy to write articles in the secular papers on

the nature of venereal diseases, so as to show the necessity of prompt treatment.

6th. To inflict the highest penalties on those practicing secretly the treatment of venereal diseases; and especially so, pharmacutists, whilst on the other hand free clinics for these diseases should be encouraged.

The author thinks that public prejudice would be hard to overcome, especially as regards the right of making a confidant of the secret practitioners.—(*Giornale Internazionale Della Scienze Mediche*, September, 1879.)

PILOCARPINE IN SYPHILIS.—Dr. Lockwood reports its use in two cases, where it proved efficient.

In the first the patient had a tuberculo-squamous affection with lesions of the mouth. The ulcerations lasted a long time, Hypodermic injections of one-sixth of a grain of nitrate of pilocarpine were administered twice a day for two weeks. No mercurials were employed. The ulcerations and eruption disappeared and did not return.

In the other case there were a rupia, lesions of the mouth and a double iritis. A mixed plan of treatment was adopted, Baths of the vapor of calomel were given. The calomel was reduced from fifteen to five grains, and the bath given every other day; an injection, hypodermically of nitrate of pilocarpine, of one-sixth of a grain, being administered before each bath. The perspiration was profuse, upon leaving the bath, and generally continued nine hours, traversing the bed clothes. The amelioration of the symptoms began immediately, and since thirty-three days (meaning fifteen baths) the crusts have fallen, and the patient feels very well; in fact, so well as to warrant his discharge from the hospital.—(*Ibid. from La Sperimentale.*)

Proceedings of Medical Societies.

THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

LARYNGEAL HEMORRHAGE. By J. H. HARTMAN, M. D., of Baltimore, Md.

That hemorrhage from the larynx is more a symptom of disease of that organ than a disease *per se*, is the experience of most laryngologists, being associated most frequently with active inflammation of the parts and solutions of continuity, such as wounds, contusions and ulcerations of the mucous membrane. Ziemssen regards laryngeal hemorrhages, which are not of traumatic origin, as generally unimportant. The blood extravasated into the tissue of the mucous membrane and upon its surface, being slight in amount, generally appearing in the form of streaks upon the catarrhal secretion, and soon disappears.

In most cases the laryngoscope reveals only a small bleeding point. Such cases of capillary hemorrhage depending upon very active inflammation, having been reported by Tobold, Semeleder, Von Bruns and Lewin. Similar cases, no doubt, have been observed by every physician accustomed to the use of the laryngoscope.

Another form, that of hemorrhagic infiltration of the sub-mucous tissues of the larynx, is far more serious in its consequences, the blood becoming rapidly extravasated into the tissues and producing a sudden and often fatal œdema, and results most frequently from traumatic injury to the larynx, though cases have been reported by Sestier¹ and Reuhle² as the result of constitutional disturbance. Extensive ulceration of the mucous membrane has been known to cause even fatal hemorrhage. Türk³ describes a case of laryngeal syphilis in which hemorrhage occurred from an eroded lingual artery in consequence of an ul-

¹ Traite de l'angine laryngée œdermateuse, 1852. pp. 62, 114.

² Kehlkopf Krankheiten, p. 172.

³ Klinik der Kehlkopfkrankheiten, p. 413.

ceration of the right sinus pyriformis, with denudation and necrosis of the great cornu of the hyoid bone.

Gibb⁴ also reports a case in which the hemorrhage took place from a breach of surface in the mucous membrane of the left ventricle, the result of syphilitic dyscrasia, which recovered under treatment. It is possible for the laryngeal mucous membrane to be bruised or cut by the passage of hard or rough morsels in the act of swallowing, or by the accidental passage of a sharp and jagged foreign body, giving rise to either a slight hemorrhage from the surface or causing a sub-mucous infiltration of blood. Two cases of the above forms of hemorrhage having come under my own observation. One, in which the mucous membrane covering the right arytenoid cartilage was cut and torn away by the accidental passage of a splinter of crab shell, from which the hemorrhage was but slight in amount. The other, in which the crest of the epiglottis was bruised and infiltrated by the accidental swallowing and impaction, for a few seconds, of a pecan nut.

Fraenkel⁵ and Sommerbrodt⁶ have reported cases of sub-mucous laryngeal hemorrhage. Fraenkel's case occurring in a lady aged 28, in the last month of her fourth pregnancy, who suffered from daily vomiting, hoarseness, dyspnoea and blood-spitting. The chest presented no abnormal symptoms. Examination of the larynx revealed a blackish redness and swelling of the mucous membrane, and a sanguinous discharge, but no ulceration. Under treatment the symptoms gradually subsided and entirely disappeared after her accouchement. Dr. Fraenkel thinks, with Dr. Semeleder, that the predisposing causes of pure laryngeal hemorrhages are excessive vomiting and also a low degree of atmospheric pressure, as maintained by Dr. Navratil.

Sommerbrodt's case was one in which a dark, round body of the size of a cherry stone was seen projecting from the posterior laryngeal wall; it was soft and firmly adhered to the inter-arytenoid space. Upon being opened with a bistoury, a quantity of dark blood flowed out and the swelling disappeared. It was, from the history of the case, supposed to have been caused by the swallowing of some hard, foreign body.

The following case which came under my observation a short

⁴ The Throat and Windpipe, p. 264.

⁵ Berliner Klinische Wochenschrift, 1874, No. 2.

⁶ Berliner Klinische Wochenschrift, April, 1878.

time since, is one of particular interest, unconnected as it was with either a traumatic cause or inflammatory action.

Mr. L., aged 32, a strong, robust man, weighing about 162 lbs., came under my charge on the morning of Dec. 10th, 1878, with the following history: Being an active member of a singing society, he had, the evening before, attended one of its rehearsals, singing his parts as usual, without any extra exertion or inconvenience. Returning home feeling perfectly well, was taken about an hour later with a sudden filling up of his throat, a sense of choking, and expectorated from two to three ounces of pure, bright red blood. The free use of ice controlled the hemorrhage for the time, there being no further bleeding until the following morning, when, shortly after arising, he was again taken with hemorrhage, experiencing the same feelings as the night previous and expectorating about the same quantity of blood, of a florid color.

The use of ice was again resorted to, but with only partial success, as he continued to expectorate blood in small quantities until seen by me, about one hour after the commencement of the hemorrhage. There was no history of pulmonary disease or previous throat trouble. On careful examination, his chest revealed no abnormal condition of the lungs or heart. Inspection of the mouth, gums, pharynx, naso-pharynx and nasal cavities showed no bleeding points, the parts to all appearances seeming perfectly healthy.

Attention being next directed to the larynx and an examination of the same being made, the source of the hemorrhage was readily seen to be a largely ruptured capillary vessel, upon the upper surface, about the middle of the left ventricular band, from which the blood could be seen oozing gradually, trickling down into the glottis, producing paroxysms of dyspnea, coughing and expectoration. There was no rupture of the tissues, or any apparent diseased condition of the larynx, though the general appearance of the surrounding parts were slightly changed by the discoloration consequent from the flow of blood. Careful examination showed no further bleeding points. The application of a strong solution of ferric alum, (3ss to glycerine and water ââ 3ss) with a laryngeal brush directly to the seat of hemorrhage, and a weak solution of the same in the form of a spray thrown into the larynx, readily controlled the flow of blood.

The patient was again seen the following day, when the point

from which the hemorrhage took place had entirely disappeared, there having been no return of the bleeding.

Upon his second visit a much more satisfactory examination was made, and still no diseased condition could be made out to explain this sudden and unaccountable rupture of a capillary vessel. That infarction of a blood vessel may frequently be the cause of rupture and hemorrhage from the same is well known; and further, that capillaries may also be the seat of fatty degeneration, the epithelial cells being destroyed in the process, and the walls so much damaged that rupture is often the ultimate result. It is more than probable that either one or the other of these pathological changes was the primary cause of the hemorrhage in the case just cited.

Had no laryngoscopic examination been made in the above case, it would undoubtedly have been diagnosed as a case of bronchial hemorrhage, though the physical examination may not have given satisfactory evidence. An error in itself to require every physician to be familiar to a certain extent with the handling of a laryngoscopic mirror. The case farther justifies me in thinking that we may look for, and that it is possible for laryngeal hemorrhage to take place, without necessarily being connected with either traumatic causes or inflammatory action. Also, that such hemorrhages, unconnected with either of the above causes, may prove to be a question of serious import.

A CASE OF LARYNGEAL HEMORRHAGE. By CLINTON WAGNER, M. D., of New York City.

Dr. M., aged about 28 years, of rather spare habit, consulted me in Oct., 1873, for hæmoptysis. His lungs, upon a careful auscultation, were found perfectly healthy. Dr. Carson, of Cincinnati, had previously made several examinations, with a similar result. A laryngoscopic examination revealed a general hyperæmia of the laryngeal mucous membrane, and from the left ventricular band, and also the left ventricle, posteriorly, an oozing of blood in minute drops could be distinctly seen.

Local applications of the ferri per chlorid 3ii to 3i aquæ and insufflation of acid tannic were made on alternate days, and gave for the time marked relief. Inhalations of acid tannic from the steam atomizer were also used. After having been about a week under the above treatment he was suddenly attacked with profuse hemorrhage upon reaching his residence, after having walked from my office, a distance of five blocks.

Prof. Austin Flint and Dr. C. C. Lee were called in to see the case. They thought the hemorrhage at that time bronchial. In this I quite concurred, although satisfied that it had had its origin in the larynx.

In due time the patient made a good recovery, and returned to his home. The subsequent history of this interesting case is given in the Doctor's own language in a letter received from him the following April, 1874:

"Your kind inquiries in regard to my present state of health may be thus briefly answered: I had a return of those hemorrhages in February last. I enjoyed excellent health during the winter, with the exception now and then of a slight sore throat. On two occasions (the day after having partaken of wine) I cleared a small clot or two from my larynx, not, however, followed by any serious manifestations. In the meantime my health remained in its usual condition. As regards my throat, it was ever so much better than in the previous winter. I had not the slightest cough or even a tendency thereto; I felt perfectly well.

"On the 20th of February my duties of Health Commissioner carried me out on a junketing political expedition. I went to a 'champagne dinner,' and partook of a pint or two of 'malt and chandor;' not enough to affect my head, but just enough to make my throat feel uncomfortable the next day (21st). On Sunday morning, the 22d, when I arose I cleared my throat of a pellet of mucus, which was quite streaked with blood. This was before breakfast. Anticipating trouble I took a Seidlitz powder and also a dram of 'ex. ergotæ fed.' Went as usual to my office, and meeting a friend told him my throat was about to bleed. I then went to Drs. Foster & Carson's office. The former asked me to dine with him; I declined, giving as a reason that my throat was about to bleed, and was even then passively bleeding. Dr. Foster laughed at me, and I then asked him to send Dr. Carson to me to examine my larynx with the larygoscope then and here. Before Dr. Carson arrived I had a brisk hemorrhage

losing about two ounces of blood. There were no air bubbles in this blood, and I am led to think it must have been tracheal and laryngeal altogether.

"I went home and remained quietly in bed for a week, eating a good square meal three times a day, and feeling as well as usual. No increase of temperature or pulse rate after the hemorrhage; no cough; nothing in fact to indicate that I had any trouble, save the clot I cleared from my larynx every morning, which showed a still lingering attempt at passive hemorrhage.

"On the two days after I rose from my bed I had a return of the hemorrhages. By inclining my body well forward no blood seemed to enter the bronchi. There was no great loss of blood during either of the latter attacks. Dr. Carter was present during the last one, and stated positively that the hemorrhage must be from high up. He examined my lungs in the most careful manner, and could discover no signs of the least pulmonary trouble. I weigh more now than I did a year ago. No shortness of breath; in fact, nothing to show that there is anything the matter with me. I consider the first attacks, as well as the last, to be laryngeal hemorrhages. What the ultimate result may be I cannot say."

The above patient has lived to become an active worker in the profession; has filled the office of Health Commissioner of a large Western city, and written several valuable works on medical subjects. I have had several other cases of laryngeal hemorrhage similar in character and symptoms to the above occurring in my practice.

A FEW SUGGESTIONS ON ANÆSTHESIA OF THE LARYNX. By WM. C. GLASGOW, M. D., of St. Louis, Mo.

The need of an agent by which the expressive sensibility and the spasmodic contractions of the larynx, caused by the introduction of instruments can be controlled, has been fully experienced by every laryngeal surgeon.

The common method of deadening sensibility by the repeated introduction of the sound is tedious, both to operator and patient.

Some cases can readily be operated upon with slight preparation, but still we find others where the most persistent education gives little result.

The use of the bromides—potassium, sodium and ammonium—when applied locally and taken internally, produce a certain effect in diminishing the sensibility, but their use is unsatisfactory when the production of anæsthesia of the larynx is desired. The same may be said of ice and the various astringents, as for example, tannin.

The morphia and chloroform solution of Prof. Bernatzie, as given by Türk, and as used by Bruns and Schræter, does certainly produce the desired result, but as the constitutional effects of morphia are marked long before the anæsthesia of the larynx is sufficient, it cannot be called a safe remedy or one that can come into general use.

In 1871, fresh from the instruction of the Vienna school, I used this solution for the first, and I trust, for the last time. The patient was a young girl, with papillomata of the larynx. I applied the solution of Bernatzie after the manner as taught by Schræter. The constitutional symptoms preceded the local anæsthesia fully one and a half hours, and they became so grave during the operation that it had to be suspended and most energetic measures employed to combat the toxic effect of the drug. The local anæsthesia, however, was complete.

I have seen the morphia solution repeatedly used with great success in the Vienna clinic, and it may be possible that my patient was peculiarly susceptible to the drug; still, the method is subject to too many risks ever to become popular.

During the past winter I have been experimenting with two remedies, both of which produced, in a measure, not only the desired anæsthesia, but also relief from pain. I refer to the hydrate of chloral and carbolic acid. Both remedies have been extensively used in throat practice, but as far as I am aware, they have never been suggested or used for the purpose of producing anæsthesia of the larynx.

The hydrate of chloral is decidedly inferior to the carbolic acid, and it is to this last that I would especially direct the attention of the members of this Association. As typical experiments, I give the following cases, illustrative of many, on which I have founded my belief in the anæsthetic property of strong solutions of carbolic acid:

CASE I.—A case of phthisis, with an enlarged hyperæsthetic follicle in the pharynx. The pain on swallowing was so severe as almost to prevent the taking of food. The solution of carbolic acid, in volume 1 to 5 of water, was applied to the follicle. An intense burning sensation was experienced, which lasted twenty seconds. This was followed by complete relief, and the act of swallowing was performed without pain. The application was made daily, one-half hour previous to the evening meal, which could then be taken with great comfort.

CASE II.—Phthisis, with laryngeal complication. Extensive ulceration of the ary-epiglottidean fold. The ulceration was touched with a solution of carbolic acid, 1 to 8 of water. The burning sensation having passed off, it was touched with solid nitrate silver. No pain whatever was experienced, the patient stating that he simply felt the contact of the instrument. The ulceration was touched with sulph. of copper, 20 gr. to $\mathfrak{z}$ i—an application of the acid having been previously made. No pain was felt. The ulceration was touched with hydrate of chloral, 60 gr. to $\mathfrak{z}$ ij water. An intense burning pain followed, more severe than that of the acid, and lasting over a minute. The solution of copper was then applied. In a half hour the aching pain of the copper application was felt, which lasted some two hours.

CASE III.—Patient with follicular inflammation and enlargement of tonsil, accompanied with neuralgic pain in the part. The tonsil was touched with a solution of carbolic acid, 1 to 6. After a few seconds the burning ceased, and complete relief was felt for two hours.

CASE IV.—Patient with cocklebur in ventricle of the larynx. The mucous membrane was excessively sensitive, the slightest contact of the instrument producing violent contractions. The solution of carbolic acid was applied to the epiglottis and glottic region, after which the forceps could be readily introduced and the burr removed.

Conclusions.—1st. Carbolic acid in strong solutions produces anæsthesia of the larynx and relieves pain. The application causes an intense burning, which lasts about twenty seconds; the anæsthetic condition continues about two hours.

2d. The hydrate of chloral in strong solution applied to the mucous membrane produces anæsthesia. The application causes a severe burning pain, lasting over a minute; the anæsthesia does not continue longer than one-half hour.

3d. The strength of the solution necessary to produce anæsthesia varies somewhat in different persons.

4th. It is recommended that the weaker solution be applied first, and this can be followed by the stronger solutions. The first application is the only one causing pain.

5th. No bad results, either constitutional or local, have followed the application of strong solutions of carbolic acid.

MITCHELL DISTRICT (IND.) MEDICAL SOCIETY.

ANTAGONISM BETWEEN OPIUM AND VERATRUM VIRIDE. By JAMES C. GARDNER, M. D., of Mitchell, Ind.

My attention was first called to the antagonism between opium and veratrum viride when treating a case of peritonitis. I gave opium and veratrum combined; the opium was intended to relieve the pain and restlessness, the veratrum to reduce the action of the heart and arteries. My prescription was pulv. opium, gr. ii to gr. iij, Norwood's tincture veratrum viride, gtts. v. My patient was relieved but did not sleep. I next treated a case of typho-malarial fever in which delirium and restlessness were prominent symptoms. I gave sul. morphine followed by the happiest effect in procuring sleep, rest and quietude for four or five hours, when my patient awoke, having a very dry mouth, pulse full and numbered about eighty-five. Patient restive, I concluded to add five gtts. of Norwood's tincture to the next dose of sul. morphine, and give every fourth hour until the patient rested and slept well. After the third dose was given I found my patient resting well, but had not slept since commencing the use of the veratrum viride. I then directed the veratrum to be omitted and the morphine to be continued. One dose of the morphine was sufficient to procure a good, refreshing sleep. In a few days after I had noticed this effect, I thought this must certainly be attributed to the veratrum viride. I was called to see a child æt. 15 months who had swallowed about a half grain of sul. morphine left by a physician for a lady who had been in the

habit of taking morphine. She had mixed the morphine in a little water and left it standing in a glass on a chair to step into an adjoining room, when the child drank the poison. I saw the child in about an hour and a half after it had drank the solution. The little fellow was comatose; I could hardly arouse him enough to get him to swallow the medicine. I gave him grs. x of Norwood's tincture of veratrum viride. In about thirty minutes he vomited, his eyes opened, he looked around, then looked up in my face and smiled. His improvement continued from this, so that he required no further aid.

These results brought me to the conclusion that there must be some antagonism between veratrum viride and opium. When upon mature reflection, I find that opium diminishes or arrests the secretions of the salivary, pulmonary hepatic, and urinary organs, the vessels of the brain become loaded, the lungs congested, the blood poisoned by the retention of urea, which aids in deepening and making more fatal the coma—resulting from the narcotic poison—this idea differs somewhat in being an exception to the general mode of death produced by opium poison, as we have heretofore understood it. Urea, one of the most important organic constituents of the urine, not being properly eliminated through the excretory functions of the kidneys, these having been arrested by the narcotic poison of the opium, the kidneys are no longer adequate to the proper elimination of this excrementitious substance, toxæmia is the result. This poisoning of the blood is noted by symptoms seriously affecting the nervous system, such as coma and convulsions preceding death, as in scarlatina with renal complication, in nephritis in Bright's disease, and puerperal eclampsia are due to uremic poisoning. In poisoning by opium, as is stated above, the secretions are diminished, and to a very great extent, suspended. The physiological action of veratrum viride stimulates the secretion or the secretory functions of the salivary glands, the lungs, the liver, and the kidneys, at the same time acting as a decided arterial sedative, reducing the force and frequency of the pulse, thereby lessening the fullness of the vessels of the brain, preventing serous effusion into the ventricles, relieving congestion of the lungs, and setting the whole machinery into healthy normal action again. Mode of administration; give in sufficient quantity to produce free vomiting. To an adult I would give one drachm in a little water every half hour or hour until free emesis is established, and to children in proportion. It is not followed by that depression which ordinarily succeeds a full dose of veratrum viride.

DISTRICT MEDICAL SOCIETY OF NORTHWEST MISSOURI.

St. Joseph, Mo., October 9th, 1879,

The eighteenth quarterly meeting of the District Medical Society of Northwest Missouri convened at 11 A. M.

President Dr. A. Goslin in the chair. In the absence of Dr. Christopher, Dr. France was appointed Secretary.

The following members were present: Drs. Long, Bryant, W. I. Heddens, Trevor, Donelan, Simmons, Doyle, Geiger, Chesney, Richmond, Carpenter, Siemans, Spicer, Christopher, Craig, Leigh, Kearney, Brown, Farr, Catlett, Smith, Kirschner, Kemper, J. W. Heddens and Varner.

Drs. Doyle and Siemans were appointed a committee to invite two lady physicians to attend our meeting.

The Society adjourned to 2 P. M.

AFTERNOON SESSION.

The Society met at 2 P. M. President Goslin in the chair; Dr. Doyle, Secretary, pro tem.

Drs. Williams and Sparks, lady physicians, were introduced to the President by Dr. Siemans.

Dr. Kearney read quite an interesting paper on constipation. It was spoken of by the members of the Society in a complimentary manner.

The following gentlemen were elected members of the Society, viz.: Drs. J. B. West, J. B. Connett, and J. L. Coffey.

It was moved and seconded that the rules be suspended to allow Drs. Bryant and Craig to present some cases to the Society, which was carried.

Dr. Bryant presented an interesting case of cerebral neurasthenia, on which he made some remarks.

Dr. Craig presented a case of curvature of the spine, wearing a plaster cast; also applied one to another case in the presence of the Society, after which he spoke at length on the causes of this disease, claiming it to be produced by traumatism, rejecting the theory of scrofula.

Remarks were made on this plan of treatment by Dr. W. I. Heddens, claiming it to be so simple that after the first application the farmer or mechanic could apply it as well as the doctor.

Dr. Simmons reported some remarks made by Prof. Sayre on the use of the plaster jacket in fractured ribs.

Dr. Goslin presented a valuable pathological specimen of a scirrhus uterus and ovaries removed from a maiden lady aged 52.

Dr. Doyle presented a specimen of knotted funis; also several cases of cystic degeneration of the chorion.

Dr. Kearney reported a case of malarial fever, followed by symptoms of tetanus.

NIGHT SESSION.

The Society met at 7:30 P. M. The President in the chair; Dr. Christopher, Secretary.

The regular subject for discussion, peritonitis, was called up, and opened by Dr. Doyle, who made quite an extended speech.

Dr. Simmons followed with some worthy remarks. During the discussion, which became pretty general, some remarks were made in reference to the want of experience among the younger members of the profession, which brought Dr. Craig to his feet, stating that he arose to enter a plea for the young members, being one of the number; claiming that a man did not have to be in the profession a lifetime to detect the symptoms of ulceration or perforation of the bowel in typhoid fever, etc.

Dr. Leigh reported a case of a young man who was wounded by an Osage thorn, which ended in sarcoma and final amputation of the limb. He also presented the tumor which was extirpated before amputation; after which a discussion arose between Drs. Simmons, Geiger and Leigh as to the difference between sarcoma and carcinoma.

Dr. J. W. Heddens reported a case of masturbation complicated with stricture, from which arose a general discussion which at times was very interesting, and at other times very amusing.

The Committee on Programme reported the following for the next quarterly meeting: Essayists, Drs. J. Leigh, James Heddens, Bryant and Craig; subject for discussion, "Alcohol as a Remedial Agent."

After some remarks of exhortation and encouragement by the President, the Society adjourned.

A. GOSLIN, M. D., President.

D. I. CHRISTOPHER, M. D., Secretary.

Clinical Reports from Private Practice.

STRUCK BY LIGHTNING. By T. G. HORN, M. D., of Colorado Springs, Colorado.

Mr. J. T. Owens, of this place, aged 60 years, proprietor of a "hack line" running between this place and Leadville, while returning from the latter place during the early part of August, 1878, and while passing over an elevated portion of the western part of South Park, about sixty-five miles from this city, was suddenly surprised by a bright flash of lightning, followed immediately by a loud, sharp peal of thunder. This caused him to look out of his hack (a light, two horse, covered spring wagon) to see from whence it came. He discovered a small cloud near and thought it impossible to encounter much of a storm. Starting his ponies on a brisk trot, he hoped to pass beyond its range. In an instant he felt a shock and knew nothing more. Fortunately some persons were camping near who saw the accident and hurried to his aid. The bolt entered the wagon just over Mr. Owen's head, making a round hole, not much larger than a walnut. Dividing, it passed on both sides of the body, taking the inside of the left leg and top of the right, passing through the right foot near the center, dividing the cuboid and external cuneiform bones, crushing the former and carrying away a large portion of the palmar surface of the foot, leaving a ghastly, rugged wound, tearing the boots to atoms and setting his clothes on fire; killing both horses instantly, falling on their sides, with their feet together. The left leg suffered less from the electric current, but received a severe burn on the inside of the knee from the clothing. Mr. O. was brought home by his daughter some five days after the accident. I was summoned immediately and found him weak, very nervous, mind much impaired. Used simple dressings of carbolates of oil and carbon, good diet and best tonics. During the latter part of the month I had the honor of showing this case to Prof. John T. Hodgen, M. D., of St. Louis, who was visiting this county at that time. He advised to continue same treatment and keep the wound well open. The shock had impaired Mr. O.'s mind to a much greater extent than at first anticipated, and as the physical forces yielded to the immense drain and constant close confinement, his mental condition became much worse. The wound was well cared for and as soon as the shattered bones could be removed, became healthy, and healed as

rapidly as could be expected under existing circumstances. The mental trouble improved but little by out door exercise, and I therefore advised a trip East. He spent several months among friends in New York and returned in May of this year much improved in body and mind. He now (Oct. 1st, 1879) attends to his usual business and can walk without the use of a cane.

THE EFFECT OF HYPODERMIC INJECTION OF MURIATE OF PILOCARPIN IN INTERMITTENT FEVER. By CHAS. T. REBER, M. D., of Shelbyville, Ill.

James Henry, aged 29, of good history as to health previous to an attack of intermittent fever (quotidian) which came on four days ago (present date, Nov. 6th), states that the chill is coming on, it being at 10:30 A. M., about the usual time of day of the occurrence of the chill. Inject hypodermically 1-6 gr. of muriate of pilocarpine. His hands and feet were cold; nails blueish; pulse soft and rapid; he feels chilly and restless; skin is shrunken and dry and very dense, so that it was with some difficulty that the point of the syringe was passed through it, from its leatheriness. In about one minute the saliva begins to flow; in one and a half minutes perspiration commences to stand in drops on the skin; in five minutes he asks for an opportunity to empty his bladder, and passes over one-half pint of pale urine. His skin is now becoming of a deep purple blush, with extremely profuse perspiration dripping from his nose and rolling in drops down the body; salivation and expectoration astonishingly profuse; respiration, sighing and irregular; pulse feeble and rapid; complains of nausea, which abates on lying down; the skin of the hands become shriveled and cold—most complete washer-woman's hands; nose cold; temperature of the surface of the body generally lowered; internal temperature unfortunately not taken; muscular twitching and jerking, passing into a tremor of of the whole body, but he says he feels warm; eyes dull. Three-quarters of an hour after the injection of the pilocarpin, owing to the somewhat threatening condition of the patient, who complains of feeling very weak while lying down, and the salivation and perspiration and all the other symptoms continuing, and the nervous prostration at least increasing, there was injected hypodermically 10 drops of tinc. of belladonna, and given by the mouth $\frac{3}{4}$ of whisky. In about one minute the salivation and perspiration decreased very sensibly, and the pulse became

plainer at the wrist, fuller and less rapid; the nervous disturbances gradually subsided, and in two hours from the injection of the pilocarpin he was able to leave the office, his weight reduced, I have no doubt, by several pounds by the most profuse salivation and diaphoresis that has come under my observation, not excepting that caused by a hot air or Turkish bath of a temperature of 200° F.

He called again on the third day; has had no chill nor fever, but has felt weak and sweated a little at night. Prescribed 3 grs. of cinchonidia, four times daily, for two days. He has recovered completely without further treatment.

How will those who hold to a specific cause—a germ, a pal-mella, or bacillus—explain the remedial effect of 1-6 of a grain of muriate of pilocarpin in intermittent fever?

Editorial.

WITH this number we close the 37th volume of the JOURNAL. We are conscious that we have done all that laid in our power to make it not only worthy of a place on the table of the medical practitioner, but also a necessity to him. That we have in a measure succeeded in this, is shown by the desire expressed by a large number of the most prominent societies, that the JOURNAL should become their official organ, and by the voluntary expressions of commendation of the contents of the JOURNAL and approbation of the course that we have taken in its conduction by hundreds on hundreds of our subscribers. Our efforts to make it an honor to the profession of the West and Southwest will be continued while we have it in our control.

As announced in the last number, the JOURNAL will be issued on the 5th and 20th of the month after January 1st, 1880.

Books and Pamphlets Received.

A Treatise on the Theory and Practice of Medicine. By John Syer Bristowe, M. D., London; second American edition, revised by the author, with notes and additions, by James H. Hutchinson, M. D. [Philadelphia: Henry C. Lea, 1879.]

The Treatment of Fracture of the Lower End of the Radius. By R. J. Levis, M. D. [From the Transactions of the Medical Society of the State of Pennsylvania.]

Some Important Topical Remedies and Their Use in the Treatment of Skin Diseases. By John V. Shoemaker, A. M., M. D., Philadelphia. [Extracted from the Transactions of the Medical Society of the State of Pennsylvania, Vol. XII, 1879.]

Report of the Committee on Public Health Relative to Lunatic Asylums. Transmitted to the Legislature, May 22d, 1879. [Albany, N. Y., 1879.]

A Contribution to the Study of Laryngeal Syphilis. By Ethelbert C. Morgan, A. B., M. D. [Reprint from the *Virginia Med. Monthly*, Oct., 1879.]

Regulations for the Government of the United States Marine Hospital Service. Approved by the Secretary of the Treasury, Nov. 10th, 1879. [Washington, 1879.]

Annual Report of the Surgeon-General, United States Army. Oct. 1st, 1879.

Adenoid Growths in the Vault of the Pharynx; their Removal by the Galvano-Cautery. By J. O. Roe, M. D., Rochester, N. Y., Fellow of the American Laryngological Association. Read before the Central New York Medical Association, 1879. [Reprinted from the *Medical Record*, Sept. 13th, 1879.]

Infant Feeding and Its influence on Life, or the Causes and Prevention of Infant Mortality. By C. H. F. Routh, M. R. C. P. L.; third edition; pp. 270, 8vo. [New York: William Wood & Co., 27 Great Jones street, 1879.]

A Biographical Dictionary of Contemporary American Physicians and Surgeons. Edited by William B. Atkinson, M. D.; second edition, enlarged and revised; pp. 747; large 8vo. [Philadelphia: D. G. Brinton, 115 South Seventh street, 1880.]

Paracentesis of the Pericardium; a Consideration of the Surgical Treatment of Pericardial Effusions. By John B. Roberts, A. M., M. D.; with illustrations; pp. 100; 8vo. [Philadelphia: J. B. Lippincott & Co. London: 16 Southamptm street, Covent Garden, 1880.]

A System of Midwifery, including the Diseases of Pregnancy and the Puerperal State. By William Leishman, M. D.; third American edition, revised by the author; with additions by John S. Parry, M. D., with 205 illustrations; pp. 732; 8vo. [Philadelphia: Henry C. Lea, 1879.] For sale by the Book and News Company, St. Louis, Mo.

First Lines of Therapeutics as Based on the Modes and the Processes of Healing, as Occurring Spontaneously in Disease; and on the Modes and the Processes of Dying, as Resulting Naturally from Disease. In a series of lectures. By Alexander Harvey, M. A., M. D., Edinburg; pp. 278; 16mo. [New York: D. Appleton & Co., 549 and 551 Broadway, 1879.]

A Ministry of Health and Other Addresses. By. Benj. Ward Richardson, M. D., F. R. S., M. A., L. L. D., F. S. A.; pp. 354; large 16mo. [New York: D. Appleton & Co., 549 and 551 Broadway, 1879.]

The Physician's Visiting List for 1880. Twenty-ninth year of its publication. [Philadelphia: Lindsay & Blakiston.] Sold by all booksellers.

The Pathology and Treatment of Venereal Diseases. By Freeman J. Bumstead, M. D., L. L. D., etc.; fourth edition, revised, enlarged and in great part rewritten by the author, and by Robert W. Taylor, A. M., M. D.; with 138 wood cuts; pp. 835; 8vo. [Philadelphia: Henry C. Lea, 1879.] For sale by the Book and News Company, St. Louis, Mo.

Consumption and How to Prevent It. By Thomas J Mays, M. D.; pp. 8; 16mo. [New York: G. P. Putnam's Sons, 182 Fifth avenue, 1879.]

Transactions of the Medical Society of the State of Pennsylvania, at its thirtieth annual session, held at Chester, May, 1879. Vol. XII, part II. Published by the Society. [Philadelphia, 1879.]

A System of Medicine. Edited by J. Russell Reynolds, M. D., F. R. S.; with numerous additions and illustrations, by Henry Hartshorne, A. M., M. D. In three volumes. Vol. I, General Diseases and Diseases of the Nervous System; pp. 1,127; large 8vo. [Philadelphia: Henry C. Lea, 1879.] For sale by J. H. Chambers, 305 Locust street, St. Louis.

METEOROLOGICAL OBSERVATIONS.

By A. WISLIZENUS, M. D.

The following observations of daily temperature in St. Louis are made with a MAXIMUM and MINIMUM thermometer (of Green, N. Y.). The daily minimum occurs generally in night, the maximum at p. m. The monthly mean of the daily minima and maxima added and divided by two, gives quite a reliable mean of the monthly temperature.

THERMOMETER, FAHRENHEIT—NOVEMBER, 1879.

Day of Month.	Minimum.	Maximum.	Day of Month.	Minimum.	Maximum.
1	27.0	42.0	18	38.0	42.0
2	39.0	45.0	19	31.5	52.0
3	28.0	37.0	20	22.5	31.0
4	26.0	48.5	21	25.0	37.0
5	41.0	61.0	22	30.0	56.0
6	50.0	65.0	23	37.5	45.0
7	53.0	67.0	24	28.0	53.0
8	59.5	73.5	25	40.0	50.0
9	51.5	54.0	26	47.5	58.0
10	47.5	65.0	27	53.0	63.0
11	62.5	74.5	28	37.0	42.5
12	56.0	73.0	29	26.5	35.5
13	52.5	78.5	30	26.0	42.0
14	59.0	65.0	31		
15	48.5	61.0	Means.....	40.8	54.0
16	41.5	61.0	Monthly Mean.....	47.4	
17	38.0	42.5			

Quantity of rainfall, 4.34 inches.

MORTALITY REPORT.—CITY OF ST. LOUIS.

FROM OCTOBER 19, 1879, TO NOVEMBER 29, 1879, INCLUSIVE.

Septicæmia.....7	Cholera Infantum.....6	Hydrocephalus & Tubercular Meningitis.....10	Apoplexy.....11
Measles.....0	Inanition, Want of Breast Milk, etc.....20	Meningitis and Encephalitis.....16	Cyanosis and Atelectasis.....1
Syphilis.....2	Alcoholism.....11	Other Diseases of the Brain and Nervous System.....14	Premature & Pre-natural Birth.....7
Scarlattina.....5	Rheumatism and Gout.....9	Cirrhosis of Liver and Hepatitis.....19	Surgical Operations.....1
Diabetes Mellitus.....7	Cancer.....9	Enteritis, Gastro-enteritis, Peritonitis, and Gastritis.....19	Deaths by Suicide.....7
Erysipelas.....4	Phthisis Pulmon.....92	Bright's Disease and Nephritis.....6	Deaths by Accident.....18
Diphtheria.....25	Bronchitis.....13	Other Diseases of Urinary Organs.....3	Congenital Deformity.....27
Membranous Croup.....11	Senility.....18	Thrombosis.....1	Total Deaths from all Causes.....618
Whooping Cough.....3	Pneumonia.....42	Apthæa.....1	Total Zymotic Diseases.....158
Yellow Fever.....2	Heart Diseases.....22		Total Constitutional Diseases.....163
Post Part. Hem'ge.....1	Other Diseases of Respir'y Organs.....13		Total Local Diseases.....226
Typhoid Fever.....18	Enterocolitis.....13		Total Develop'tal Diseases.....45
Cerebro Spinal Fe.....2	Marasmus—Fæbes Mesenterica and Scrofula.....30		Deaths by Violence.....26
Remittent, Intermittent, Typho-Malarial, Congestive & Simple Contin'd Fevers.....22	Convulsions.....46		
Puerperal Fevers.....1	Aneurism.....1		
Diarrhoeal Diseases.....21			

CHAS. W. FRANCIS, *Health Commissioner.*

OCTOBER, 4, 1879.

On the Treatment of Asthma and Emphysema by Means of Waldenburg's Pneumatic Apparatus.

DR. FISCHER:—About one year ago you did me the honor to listen to a paper on treatment of asthma and emphysema by means of Waldenburg's pneumatic apparatus. It is at the earnest request of friends among us to-night that I again take up the subject; not because I have much that is new to add, but simply to bring before the Society the result of additional experience, in hopes that it may lead to the encouragement and more general use of a method of treating certain affections, which resist ordinary medication. In giving this to the Society I make no pretension to either originality or specialty. It is the product of my individual experience, backed by a thoughtful consideration of the subject by foreign authorities. I place before you a diagram of Waldenburg's apparatus. It is, as you see, simply a cylinder within a cylinder filled with water, so constructed that by suspending weights to the strings attached to the inner cylinder, and playing over pulleys fixed to iron rods, at a height equal to the length of the outer cylinder, the inner cylinder will rise and take in air. This air can be compressed or rarefied by the proper use of the weights. The principles of construction of this apparatus are such that the air in the receiver remains of uniform density until it is exhausted. The density of the air in the cylinder can be exactly calculated as follows:

The atmospheric pressure on the upper surface of the inner cylinder has been estimated to be nearly 1,200 pounds. The weight of the inner cylinder is ten pounds. If now this be filled with air, its own weight will compress this air $\frac{10}{1200}$ of an atmosphere. By placing an additional ten pounds on the top of the inner cylinder, the degree to which the air is compressed will be $\frac{20}{1200}$ i. e., $\frac{1}{60}$ of an atmosphere, and thus on. In rarefying the air, this proceeding is reversed, i. e., the receiver being empty, and the faucet closed, weights are attached to the strings. The more weights attached the greater the degree of rarefaction. The proportion is the same as the foregoing.

Having, by this simple process, at our command *air*, which we can compress or rarefy *ad libitum*, the question naturally enough presents itself: What are we going to do with it? In other words what are the mechanico-physiological effects of air modified in its density? Leaving out of consideration for the

present the action of compressed and rarefied air in all other diseases except emphysema, bronchitis and asthma, we will analyze this action under three distinct heads. 1st. In what way does it operate? 2d. To what organ or tissue is its action directed? 3rd. Result of the action.

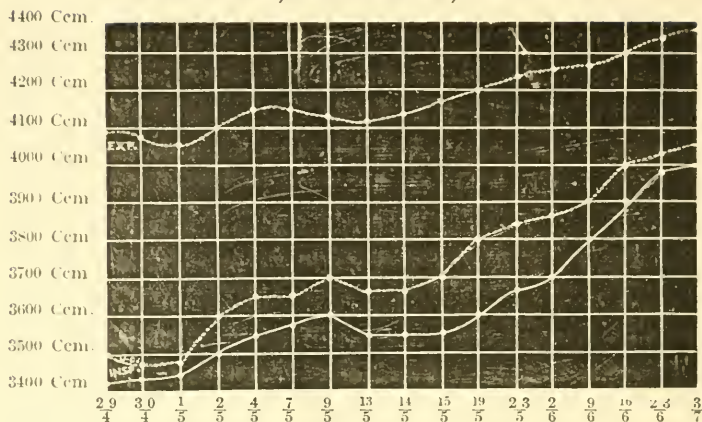
First. In what way does it operate? If we turn the apparatus into a spirometer—and this can easily be done by counterbalancing the inner cylinder by means of weights attached to the brass hooks—we can estimate the vital capacity of lungs by cubic centimeters. For instance, I have found that the vital capacity of my lungs tested in this manner is 3,300 cm., i. e. after a full inspiration, I can breathe out 3,300 cm. of air. If now I rarefy the air in the receiver, I find that the greater the degree of rarefaction the larger the quantity of air I exhale. For example in using $\frac{1}{60}$ of a negative atmospheric pressure the volume of air that I exhale is 3,500 cm., at $\frac{1}{30}$ pressure 4,000 cm. Professor Waldenburg mentions the case of an emphysematous patient whose vital capacity was 4,350 cm.; at $\frac{1}{20}$ negative atmospheric pressure he exhaled 7,800 cm. of air, an increase of 3,450 cm. If now, instead of using the rarefied air, we subject ourselves to the influence of compressed air, we will get similar discrepancies. By forced inspiration I find that my lungs hold 3,150 cm. of air. By inspiration of air compressed $\frac{1}{30}$ of an atmosphere I increased the capacity to 3,800 cm. These figures certainly speak volumes. To breathe out into air that is rarefied, means to rid the lung of a surplus of residual air, that cannot be disposed of in any other possible way. To breathe in air that is compressed, means to supply the lungs with more complementary air than can be supplied by any other possible method. *Residual* air is forced out, complementary air forced in. In other words a more perfect retraction and expansion of the lung tissue takes place in this manner than in any other that we are cognizant of.

¶ Second. *To what organs or tissue is its action directed?* We have in the pneumatic apparatus a therapeutic auxiliary that produces a certain effect upon given organs, and only secondarily does it have an influence upon the organism at large. Its primary action is on the lungs and heart, and in its ultimate effect upon these organs only does it have a bearing on the general system. We will prove the truth of this second proposition by the third, i. e., *the result of the action*.

The expiration into rarefied air, as has been seen, will always give a result greater than the spirometric volume denoting the vital capacity. The plus volume is equivalent to a quantity of residual air lodged in the lungs, and no other method with which we are acquainted will dispose of so great a portion of this air surcharged with carbonic acid. That this is so, we know from the effect of a course of treatment with rarefied air in emphysema. In this disease there is a distension of the lung, at times

far beyond its natural limits. In consequence of this the elasticity of the parenchyma is so much impaired, that expiration however forced will not effect a proper, i. e., normal retraction. This condition is radically relieved in most cases where the emphysema is not of too old standing, i. e., whose lungs and chest are sufficiently retractable to warrant the use of this method of treatment. Waldenburg speaks of the expiration in rarefied air as the specific mechanical antidote of emphysema. A serious, and at times an almost insurmountable obstacle in the way of success, is the excessive irritability of the bronchial membranes. This complication contraindicates for the time being the use of rarefied air, because of its powerful mechanical irritant properties, which would produce mischief. Fortunately, by simply reversing the mechanism of Waldenburg's apparatus we have at hand a means of relieving this bronchial irritability. In bronchitis, either by itself or accompanying emphysema, I have occasionally had a wonderful result in its treatment with compressed air. The expectoration became more free and gradually less, the cough less severe, sleep better, and auscultation soon revealed good vesicular breathing unaccompanied with the large crepitant râles of the catarrh. Unfortunately such good result is not met with in all instances. I have only in the exceptional cases been quite successful in obtaining good and speedy relief by following up this treatment. This unpleasant complication interferes so much and so often in the treatment of emphysema. An exacerbation of the bronchitis, which causes a swelling, and therefore contraction of the bronchioli, will often tend to bring about a return of an emphysema, which was rapidly improving. It can safely be stated that the success of the treatment of emphysema depends upon the degree of the irritability of the bronchial tubes. But the disease for which of all others to be treated with the pneumatic apparatus, we are consulted most frequently is *asthma*. Here as in bronchitis there is a constriction of the smallest bronchial tubes, generally caused by a spasmodic contraction of their muscular fibres, in other instances by an acute swelling of their mucous membrane. (Waldenburg.) Compressed air passes through this constriction, and is forced into the alveoli. In this manner the attack itself is cut short. Almost without exception patients coming to me with a severe attack of asthma would be made comfortable after the use of compressed air. Of course the relief in most cases is but temporary, because, as a rule, asthma is secondary to other complications. Only twice have I been so fortunate as to be consulted by patients suffering from their first attack of asthma. In both cases I succeeded after a very short course of treatment, in giving so far as I know permanent relief. As illustrative of the course of treatment pursued and a happy result, I cite the following case of emphysema, bronchiolitis and bronchial asthma.

EMPHYSEMA, BRONCHIOLITIS, ASTHMA.



Mr. J. B., merchant, residence St. Louis, age 46 years. Experienced his first attack of asthma two years ago. He accounts for it as the result of a neglected cold, contracted while nursing his children at night with whooping-cough. The *status praesens* of the case when he presented himself to me on the 29th of April was the following: A medium sized, well-developed frame of about 140 pounds weight. Complexion sallow, with lips slightly cyanosed. Patient complains of being uncomfortable at night, unable to assume for any length of time the recumbent position, and when asleep the noise in his chest becomes so loud that his wife complains of its disturbing her rest. He has not found it necessary to absent himself from his business. Auscultation reveals diffuse bronchitis over both lungs, loud râles with vesicular breathing scarcely audible. Percussion gives an abnormal resistance of the lungs on both sides to the lower border of the ribs. Vital capacity of the lungs 3,500 cm. I began my treatment of this patient with air compressed $\frac{1}{80}$ of an atmosphere, followed, after ten minutes' rest by the expiration in rarefied air of $\frac{1}{90}$ neg. pressure. The latter made him expectorate very freely, but otherwise he was not rendered any more uncomfortable. He came to my office for four consecutive days, and on May 4th, I find the vital capacity of his lungs increased to 3,650 cm. with improved respiration. Between the 4th and the 13th day of May, I saw the patient twice. On the 13th, he had a slight relapse, the bronchial trouble brought on a short attack of asthma on the night of the 12th. By the 19th of May his condition was materially improved. The vital capacity of his lungs was 3,800 cm. From then on until July

3rd there was no interruption to his progress, his vital capacity on that day being nearly 4,000 cm. On forced inspiration of air compressed $\frac{1}{40}$ of an atmosphere the volume of air inspired was 3,900 cm., an increase of 500 cm. from the time of his beginning the treatment. The improvement in expiration was equally marked: 4,100 cm. on April 29th; 4,400 cm. on July 3rd. With the improved vital capacity of the lungs of this patient there was a manifest improvement both in respiration and general condition. Though there was still slight bronchitis, the vesicular breathing became distinct all over his lungs, and the emphysema was so far as I could diagnosticate well. The lungs have become retracted, the patient has no trouble whatsoever at night, he expresses himself as absolutely well, looks well, and eats well. I mention the latter because as a rule patients always experience an improved appetite on the use of air modified in its density. Unfortunately the success of this method of treatment is not always accompanied with such happy results as the foregoing would indicate. I have the history of a young man nineteen years old in my case book, who has suffered with emphysema, asthma, and bronchitis for over twelve years. All that I succeeded in doing with him, after six months careful treatment, was to palliate his suffering. But even here I think much was accomplished in preventing bad getting worse. I append from my note book the record of a number of cases illustrative of the result of compressed and rarified air on the diseases mentioned.

CASE I.—L. F., aged 46 years, has been a sufferer from emphysema for 28 years. A man of unusual energy, he returned from a business trip early in April, 1876, because, as he said, he could not walk ten steps without losing his breath. Examination of the chest revealed emphysema, involving both lungs, together with extensive pleuritic adhesions of old standing. General appearance very much cyanosed; œdema of the lower extremities, with an effusion of fluid into the scrotum; no ascites; the heart's action feeble and very rapid; pulse from 110 to 120 beats to a minute. The objective and subjective symptoms both seemed at any moment to threaten life. I felt, and consulting physicians sustained me in my opinion, that there was nothing to be done for him.

As a last resort, I carried him to Dr. Greiner, who possessed and was using with good success Waldenburg's apparatus. We did not take the vital capacity of the patient's lung; it could not, however, have exceeded 800 cm. After fourteen successive daily visits to the doctor, the patient expressed himself as feeling better. The only thing he dreaded was the exertion of going to or coming from the doctor's. I bought an apparatus, and the patient, living at my house, used it regularly twice a day. Within the next two weeks the patient, who had passed, in the main,

sleepless nights, would sleep well for five hours at a time. Dyspnoea considerably relieved; general appearance much improved. On the continuous use of compressed and rarefied air, the patient grew gradually better. He could walk about the house, with considerable ease go up and down stairs; appetite improved, and sleep good.

In July the patient had so much improved in general appearance as to call forth surprise in everybody who had known him before. The puffiness of his face had entirely disappeared, as also the œdema of his lower extremities. He would take daily drives with me, and occasionally visit his place of business. He enjoyed the visits of his friends, could talk and laugh without bringing on any dyspnoea. I began to promise myself and him a happy result. In the latter part of July a member of his family was taken seriously ill; he soon began to feel troubled about her, and with that his improvement seemed at an end. In August his mother, for whom he lived, died; he followed her remains to her grave, came home with a severe relapse, was taken with a fresh attack of pleurisy, from which he never fully recovered. His dyspnoea became worse, sleep and appetite failed him; œdema returned, followed by general anasarca and death on the 26th of October. I mention this case, 1st, because it was the first one coming under my observation which I was enabled to treat with compressed and rarefied air; 2d, there could not have been a more exaggerated form of emphysema; 3d, the treatment, contrary to all expectation, seemed to benefit the patient.

CASE II.—Mrs H., age about 40 years, consulted me July 15th, 1876, with emphysema and, as she called it, hay asthma. Had been suffering for 15 years with regular attacks of asthma, beginning in July and lasting until October. From October to July she felt comparatively comfortable; always has some difficulty in breathing, but did not pay any attention to it. She was carried to me in a carriage, having suffered with an asthmatic attack almost without intermission, for over a week. Had had no rest of any consequence in the meantime, there being excessive orthopnoea. I allowed her to inhale condensed air, compressed $\frac{1}{86}$ of an atmosphere. After having emptied the first cylinder she already experienced considerable relief. After the second, she expressed herself as "a different person." Patient had some three hours sleep that night; awoke, however, with asthma and returned to me with it in the morning. I again used compressed air, alternating, however, with the use of rarefied air; she was again relieved of her attack. I had her return in the evening and was gratified to learn the next day that she had passed a rather comfortable night. I did not see the patient after the 19th of July until the 29th; she feeling so well that, contrary to my advice, she thought she could get along without me. On the 29th she returned with a fresh attack of asthma and

remained under my care until Oct. 30th. During these three months her general condition was much improved. Her appetite, which before amounted to almost nothing, grew better. She had six attacks of asthma in ten weeks, each attack, however, passing over speedily and followed by a comfortable condition. On the 30th of October, after I had not seen her for about three weeks, she presented herself to me with asthma and a very high fever. She had too much fever to use the apparatus, so I sent her home with instructions to send for her regular physician. She did so and was confined to her bed for six weeks with pneumonia. She recovered, went East the following summer and had no attack of asthma for well nigh a year. Her emphysema gave her so little inconvenience that she was not under treatment.

For the past two years the patient has had occasional and very severe attacks of asthma, but her general condition is much improved. For some reason she has not returned to me for treatment, though she was instrumental in having a niece of hers consult me about one month ago, who had been confined to her room for six weeks previous with severe bronchitis and asthma. The young lady assured me that she had not passed a night in bed for two weeks. As soon as she attempted to lie down she was seized with an attack of asthma. She has called at my office eight times, and is now enjoying the best of health. After her first use of the apparatus she slept all night and has had no relapse since. Will this continue so? I do not know.

CASE III.—W. S., age 30. Has been suffering for the past 2 or 3 years with a severe cough, with always increasing dyspnoea. Both cough and dyspnoea grew worse towards evening, and for two weeks has regularly had a paroxysmal attack of asthma every night. Patient presents a well-developed arched thorax. Percussion gives an abnormal sonorous, very deep sound. The heart is entirely covered by the lung. The lungs extending to within the lower border of the ribs. Auscultation gives very indistinct vesicular breathing over the whole thorax, with loud, large crepitant râles. The vital capacity of his lungs is 3000 cm. Here then I had a case of asthma, bronchitis and emphysema. The patient being a comparatively young man, I thought I could promise him a good result. I put him under a treatment of compressed and rarefied air, and was gratified in relieving his distress very speedily. He came to me daily for 3 weeks. After the 4th day he had no more asthma; the bronchitis improved considerably but the emphysematous condition of his lungs remained about the same. I saw the patient ten times in the month of September, six times in October, and after that once a week until February of 1877. The patient expressed himself as satisfied with his progress. I detected no improvement after the first 3 weeks treatment—only this, that he has never had a severe attack of asthma; he looks better, seems

more cheerful, but he still has emphysema. Patient removed to the southern part of the city, and is occasionally using Waldenburg's apparatus.

(These notes were made in 1877. I have lately learned that the patient's condition was not much improved on the continuous use of the apparatus, and that he left for California. His relatives inform me that the change of climate benefitted him very much, and that he is now comfortable).

CASE IV.—Mr. W., age 39, experienced his first attack of asthma in September of 1876. Suffered for two consecutive nights. Has had an ugly cough with difficulty of breathing, until Oct. 17th, he again was taken with a severe spell of asthma, and on the 22d, presented himself to me, very much distressed. Patient is a large healthy-looking man, with a well-developed thorax and no complaint whatever except of his asthma. I put him under treatment with compressed air, and after 4 visits to me his breathing was as normal as could be. The wheezing and crepitant noises had entirely disappeared, patient slept all night in a recumbent position, and after 4 more visits, at an interval of one week each, I discharged the patient as well. I have seen him lately and he assures me that he has had no attack since.

I have had two other cases in my experience of similar rapid recovery.

CASE V.—On June 5th, 1877, I was called in haste to see Mr. G. The messenger bade me haste, because the gentleman he thought was dying. I found patient a man of about 50 years, large, well-built, seated by an open window, and fanned by two attendants with all their might. A perfect picture of distress consequent upon dyspnoea. In answer to my questions the patient would not venture a word, but only shook his head and opened his mouth all the wider. I learned from the family that the patient had been suffering more or less in this way for a week. That he was being attended by Drs. Hodgen and Mudd; that he had heard of "my machine," and that he hoped that I would help him at once. I tried to make him understand that I couldn't carry that machine in my pocket, but that if he would come right home with me I believed he could be relieved. I thought this case warranted a breach of etiquette towards the Doctors attending. I felt sure of their forgiveness, and finally succeeded in persuading Mr. G. that he could venture to drive home with me. He returned to his home in the street-car, rested well that night, and five days afterward I saw him for the last time, entirely free from asthma.

The patient returned to me on April 23d, 1878, with a very severe bronchitis, and as he stated, with slight asthma. He was under my care until May 28th, using the apparatus in all 18 times. His bronchial trouble was entirely relieved, and he was,

as far as I could tell, well. I advised the occasional use of the apparatus, but the patient did not respond. He has, however, remained well since.

CASE VI.—Mr. S., a young man, age 23, consulted me Oct. 8th, 1876. Had had asthma every night for a week, which deprived him of sleep, and incapacitated him for work. Had never had asthma before, but was often troubled with bronchitis. I found, on examination, that I had to do with a case of asthma complicated with bronchitis, but no emphysema. After two days of treatment with compressed air he had no more asthma. He was under my care until Dec. 6th, and when discharged was entirely free of his bronchitis. I found in this case, as I have in others since, that the expirations into rarefied air is an excellent mechanical expectorant. The air sucked out of the alveoli, in passing through the large and small bronchial tubes, seems to loosen the mucus from the mucous membranes, and in that manner the latter is cleaned of it.

My experience with the compressed and rarefied air, warrants my saying that it is an excellent expedient in the treatment of asthma, bronchitis and emphysema. The success that I have had with emphysema is not so encouraging as that reported by others using the same manner of treatment. I have treated in all 33 cases. All but three I am sure have been benefitted—some less, some more—many have been entirely relieved, whether permanently or not, I cannot tell.

DR. LUTZ:—I wish to ask the Doctor if he entirely discarded medicine in the treatment?

DR. FISCHER:—I have until lately; think I shall again. In all these cases I have not administered one drop of medicine. I gave them nothing except air.

DR. W. JOHNSTON:—This paper is a very interesting one, one in which every member of the Society ought to be deeply interested. It is the experience of every physician called to the bedside of a patient suffering asthma, to see the patient gasping for air. It is compressed air he is asking for. They are often gasping even when the thermometer is down at zero. This symptom is most frequently manifested when the mercury approaches the freezing point. I have asked myself why is this? Is it a pure neurosis? Is it a defect in the aeration of the blood that produces this phenomenon? Salter says "Make your patient drunk and you will cure asthma." But if you make him drunk you arrest so much vital force. If we send our patients into valleys devoid of malaria, they would get better. Most patients subject to asthma who have gone to California, have suffered severely. I remember the case of a gentleman who went thither but was obliged to return. There he encountered a cold atmosphere, even in August. It suggests the physiological fact that in all

asthmatics there is a deficiency of aeration and if we send them to higher elevations there would be still greater deficiency. Years ago physicians were in the habit of sending asthmatic patients to the Mammoth Cave in Kentucky. I have known patients who have been relieved by inducing intoxication, but if by compressed air we can help them, that would be better.

DR. WM. PORTER said:—I indorse what Dr. Fischel has said of this method of treatment in the diseases indicated, having used it more or less constantly for nearly three years. All cases of asthma must be individualized, and, if possible, the cause of the disease determined. Thus, reflex irritation from a mal position of the uterus, or ovarian disease, or nasal polypi—any of these may so influence the pneumogastric nerve that we may have severe attacks of asthma, and the inspiration of compressed air can do but temporary good until the cause is removed. An examination of the physical laws bearing upon the inhalation of air of modified density will at once show that this is rational treatment in many forms of chest disease. Having spoken of this subject elsewhere (*St. Louis Med. and Surg. Jour.*, Oct., 1878), I will only mention some of the effects produced. The first result of the inspiration of compressed air will be an increase of vital capacity, and the venous circulation is accelerated. In many instances the mucous lining of the bronchial tubes is surcharged with blood, and condensed air compressing this net-work of veins so drives out the blood and relieves the temporary congestion; this enables the heart to carry on its work more easily, and a quick, feeble pulse becomes full and hard. During the inhalation of compressed air there is a large supply of oxygen, for "the volume of gas absorbed by any liquid is directly in proportion to the pressure under which the gas above it remains." Expiring into condensed air strengthens the muscles of expiration. It requires a great effort to drive the air into the weighted cylinder, and so the auxiliary muscles of expiration are brought into full play. I am sure that the increase of chest circumference is not alone due to the increase of vital capacity, but also to an enlargement of the muscles of expiration.

On the other hand the inhalation of rarefied air naturally strengthens the muscles of inspiration, as will be understood when the instrument is examined. Elimination of carbonic acid is also aided, the converse of the law before mentioned taking place. If water, saturated with carbonic gas is under pressure the gas remains until the pressure is removed, then it escapes. This is one reason why many patients do well in localities having great elevation. I have found that the inhalation of condensed air strengthens the muscles of respiration, increases the vital capacity and assists the assimilation of food. The circulation becomes more regular, oxygenation is more perfect, and so the absorption of nutritious matter goes on more rapidly. In proof of this, I have, after the use of condensed air been able to

give effective doses of cod liver oil to patients who before were unable to take it. In emphysema this treatment greatly adds to the comfort of the patient, though it fails, necessarily, often to cure. You remember observing that the vesicular walls of the emphysematous lung are thin, and as a consequence of the existing atrophy, there may be rupture. This atrophy is due to want of nutrition as Hertz has clearly demonstrated. The proper use of rarefied air not only diminishes the abnormal amount of residual air, but invites an additional blood supply, thus assisting the nutrition of the part. Condensed air for this reason is not indicated in the early treatment of emphysema.

DR. SPINZIG asked: What is rarefied air?

DR. FISCHEL replied: Air modified in its density.

DR. SPINZIG:—This is a subject of uncommon interest. One point that had not been mentioned was the temperature of the air for medication, and the degree of humidity conveyed at the same, whether it is pure atmosphere, dry or moist; whether it is an atmosphere at 30° or 75° , or whether it is an atmosphere at zero. The experiments of Prof. Pettenkofer showed that in cold and dry air caloric was given out; in a moist air caloric, instead of being given off, was retained to a higher degree. We know that the temperature cannot be equaled when respiration is seriously interfered with: that when temperature is increased to such degree that respiration is interfered with carbonic acid is not exhaled; and in reference to the pressure of air used in this instrument, if the air is cold and dense the exhalation of carbonic acid is increased. With reference to the theories of treatment under consideration, he had not found as favorable results as those reported by Dr. Fischel. Probably only incipient cases would be benefited by treatment of this kind.

DR. THOS. F. RUMBOLD:—I am very much pleased with the narrative of the results obtained as stated in Dr. Fischel's paper, yet I cannot help thinking that the use of but one remedy alone in complaints of this kind, is to be deprecated. I think that nearly every remedy that is available for diseases of the respiratory organs should be used, that is, the remedies used should be both local and constitutional. Yet, as I have said, this is a valuable paper because it gives us a treatment by one remedy, and it proves that the remedy is one of great use; certainly if this remedy is useful it, in conjunction with others, should be still more beneficial. When I read of this treatment, several years ago, I was favorably impressed with it. In my hands, however, it did not produce the results that I expected, but I would not place my experience against that of the experience of Dr. Fischel, as every one who heard his paper, must notice that he has used this remedy with great care, and has reported honestly its effects.

My experience has taught me that catarrhal patients are re-

lieved by a somewhat varied kind of treatment. In 1868 I had a patient that resided in Alton, who was a victim of asthma, although at the time of his visit to me I did not know it. He came for the removal of nasal polypi, one of which was removed from each nostril. Three years afterwards (1871) he came to me to be treated for sore throat. This was relieved. In 1874 he again consulted me for a chronic catarrh. This time I treated him for three months. Two years afterward he consulted me on account of his asthma. It was at this visit that I learned that he had been a victim of frequent attacks of asthma for about ten years. At the same time he related to me that at each of his previous visits he was relieved of his attacks of asthma for several months at a time, that is, the removal of the nasal polypi, the treatment of the sore throat, and the relief received from the treatment of the chronic catarrh, all relieved him of attacks of asthma. At this time (1876) I gave him oxygenized air to inhale. One part of pure oxygen to nine parts of atmospheric air. This also relieved him. He inhaled four or five gallons of this mixture, but of course was not cured. He learned to make the oxygen himself, and used it always with relief, at his own residence for about one year. At this time he used nitrate of amyl, from the effect of which he unexpectedly died. I have no doubt that many cases of asthma can be relieved by the treatment of the nasal trouble that most of them have. As I have, time and again relieved, and I believe I have in a few cases cured young patients by the means of the spray producer, in combination with constitutional treatment.

DR. FISCHEL:—I wish to set myself right in the esteem of the profession. I do not wish to be regarded as a blind enthusiast on the subject of compressed air. I have simply endeavored to show that the cases, in which it was employed were relieved, though I cannot be positive that the relief is permanent. But if by this method we can give relief, though not radically, but only for the time being, I think we have accomplished more than we have been able to accomplish by any method of medication or other mode of procedure.

THE PRESIDENT:—I think it would be proper to continue this subject another night. There is a vast amount of observation now being made in regard to the effect of rarefied air, particularly at Leadville, which is 11,000 feet above the level of the sea. The subject is an extensive one and may play an important part in our investigations.

Dr. Fischel said that when he spoke of condensed air he meant air that was condensed by some such apparatus as he had described, and not treatment by altitude.

OCTOBER 11, 1879.

Sciatica.

DR. F. J. LUTZ said :—At a former meeting I had the honor of reporting to this Society a case of sciatica, in which I had cut down upon the nerve and stretched it. Dr. Williams suggested that hypodermic injections of chloroform had been given in such cases by Dr. Comegys, of Cincinnati, I addressed a letter to Dr. Comegys, and received this postal card to-day (read) :

"It is ether and not chloroform that I use ; injections of 20 to 30 drops behind the great trochanter, for two or three days if required so long.

Resection of Rib for Empyema.

I wish now to present to the Society, the man on whom I performed resection of the rib last spring.

Dr. Lutz then read notes of the case, which has already been reported.

The man had done well ever since. The opening had healed up, his respiration is sound, and his appetite good.

DR. W. DICKINSON :—In a case of sciatica, which came under my treatment I used ether in the manner suggested, i. e., 25 or 30 drops at intervals of two days. This case had resisted much and varied treatment, but to this mode of attack it gradually and completely succumbed. Three months have now elapsed since its employment and no return of the affection has been experienced although daily exposed to strong causal influences.

Dr. W. PORTER, speaking of the case of resection, remarked on the excellent results obtained by Dr. Lutz. After a cursory examination, he would say, so far as the evidence goes, the lung had regained its function, and respiration is normal. This operation gives free egress to the pus and allows the attendant every opportunity of watching the course of the case. He believed the resection of the rib was preferable to aspiration.

DR. LUTZ exhibited a specimen illustrating cancer of the stomach and asked Dr. Wesseler, under whose care the case had occurred, to give its clinical history.

DR. WESSELER :—The patient was 52 years of age, a farmer, a bachelor and a miser ; a resident of St. Louis county. He presented himself for treatment August 16th, 1879. He complained of want of appetite, fullness of the epigastric region, obstinate

constipation, but no vomiting. He said a boy had some time ago struck him on the stomach and that it seemed to him he had felt a little pain there ever since. He had chills a year ago, when he was treated by a druggist, but that he had never felt entirely well since. After making diligent inquiries in every direction, I diagnosed cancer of the stomach by exclusion. Without allowing my patient to know my conclusion, I ordered Pulv. Jalap Comp. as a laxative and Ferri cit et Qui as a tonic and told him to call again next week. As he was leaving my office he informed me that he lived near Mr. L.'s, who was in the habit of stopping at my office when going to or coming from market, and expressed the wish that I should send medicines by his neighbor to save him trouble and expense. This I declined to do. Aug. 23d he called again and reported himself somewhat better; his bowels had moved regularly, but his appetite had not been restored, and if I could only give him something to operate in that direction he would be all right. I tried to explain to him some of the difficulties, and gave him a prescription for a bitter tonic. The next week his neighbor, Mr. L. called and informed me that my patient was sending his urine to a city physician, who treats all manner of diseases by looking at the urine, and that he was growing worse. I advised his removal to the hospital. From Mr. L. I learned that the blow on which the patient at first seemed to lay so much stress had been received twenty-five years ago.

Sept. 28th the man was admitted to the Alexian Brothers Hospital, greatly emaciated, with abdominal effusion, but no œdema of the extremities. The stomach at this time would retain nothing, and the fluid in the abdominal cavity increased very rapidly. Oct. 3d I withdrew about $2\frac{1}{2}$ gallons of fluid. The treatment consisted in the administration of nourishing diet and morphia. He failed very rapidly and died Oct. 4th, 1879.

I invited Drs. Hickman and Lutz to make the post-mortem, and the Doctor will state to you what we found.

DR. LUTZ remarked: The man was extremely emaciated; the skin was of a peculiar straw color. There were no noticeable marks on any part of his body. The abdomen was very much distended, and on percussion a tympanitic sound was elicited over the whole abdominal parietes, extending high up in the epigastric region; even the right hypochondrium was resonant.

On opening the abdominal cavity the peritoneum was found in a state of chronic inflammation; the intestines small and large were distended with gas and fecal matter and pushed up in front of the stomach, liver and spleen. The omentum had shrunk to a band about 3 inches in width and felt hard and gritty. The stomach was removed, and at the upper margin of the pyloric orifice a schirrhous growth about $1\frac{1}{2}$ inches in diameter was found; opposite this tumor the wall of the stomach was perforated, the

opening admitting perhaps two pins heads. The other abdominal viscera were not cancerous.

The post-mortem explains very readily the obscure symptoms and shows how difficult, I dare say impossible, it was to diagnose the disease except by exclusion; certainly the physical signs did not justify such conclusion.

Whether or not there exists any relation between the alleged injury and the growth I shall not attempt to decide; it is, however a curious coincidence. Then we have a cancerous neoplasm growing from the upper margin of the pylorus, and of such size as not to interfere with the free exit of the contents of the stomach—hence, the absence of vomiting.

In the next place a perforation is found which being of very small diameter, (two pins heads), was in all probability a recent complication, dating, probably, not earlier than the period at which the rapid sinking was remarked; i. e. within 24 hours of death.

Remarkable Monstrosities.

DR. G. M. B. MAUGHS presented as pathological specimens the bodies of two dead infants, and said: I have satisfaction in showing the Society some remarkable monstrosities.

This first case occurred in the practice of Dr. Schmidt, of Cairo, Ill., an intelligent and experienced physician. The mother has several children, who are sound and healthy. The parents are hearty and healthy people. This is supposed to be an eight month's fœtus. It was a hideous monster and howled furiously. It frightened the mother, who imagined that it looked like a dog. The eyes are imperfect; the ears scarcely raised above the surface. The mouth is large, wide, gaping; the fingers contracted, and everywhere the skin striped like a zebra. One author says it is a disease in which the epidermic scales form a hard coat to the surface which is lacerated, and fissures are produced down to and sometimes through the muscles. This is simply a disease of the epidermis; otherwise it is a well-formed child, except that the mouth, ears and nose are all deformed. Six or eight cases were reported up to 1843. This disease has been attributed to mental emotions on the part of the mother. The mother of this child, about the second month of pregnancy, stepped on a dog in the dark. This frightened her, and gave her the impression that something was wrong. The child had an enormous mouth, and when it screamed the noise could be heard two squares off. The mother thought it was a dog. She thought it was deformed on account of fright.

I was informed by Dr. Schmidt of another who during pregnancy pierced the ears of one of her children, and afterwards had a child born with both ears pierced.

I had a remarkable case twenty-five or thirty years ago, a case of hermaphroditism. The mother dreamed that she gave birth to a hermaphroditic child, and she told her husband. He

laughed at her. Next day she talked to her neighbors. The women came in and she continued to talk about it, and became satisfied she was going to produce a hermaphrodite. I was there when the child was born, and she asked particularly what it was. I said it was a boy. I saw well-developed private parts. As soon as I left the husband laughed and said "I reckon you will not again make a fool of yourself." She had the child brought to her and it was a hermaphrodite, as near as humanity ever gets to be. The child died two or three years afterward.

Alluding to the second pathological specimen, Dr. Maughs said: This is even a more remarkable case. In this instance the arms have been amputated in utero. What is unique is that its head also is amputated. It is a headless child. How were the parts dissected? It is supposed that the umbilical cord twined around the limbs, or fibrous bands have formed, produced constriction and cut off the limbs. You see where the limbs have been cut off and where the head has been cut off. It seldom happens that nature makes an effort to reproduce limbs. Nature has here produced a hand, a beautiful hand, with five fingers and delicate finger-nails. This happened when the embryo was low down in the scale of organization; it was on a par with the salamander; it made an effort to reproduce the lost extremities, and reproduced a tiny hand, the most beautiful thing I ever saw. This child was a twin. One child was born healthy and well-developed. This was at full term. The parents are both hearty.

DR. FAIRBROTHER said he would like to raise a question with regard to the kind of life that may have existed in this headless and armless being with regard to the probable difference of the life in this being and the vitality of a tumor.

DR. G. HURT said that physiologists had thrown a good deal of light upon the laws of organic matter, but they had not been able to find yet what the law is that determines form in living, organic matter. There are some things pertaining to physiology which are the secrets of nature. Whilst Dr. Maugh's theory of the loss of the head and arms might be correct, it might have been that the laws which determine form in living matter had been in some way deranged, and there had been no head and no limbs to be amputated. In the early stages of gestation there are many influences which might have the effect of perverting, as it were, the laws of form. In this case the ovum may have remained in the Fallopian tube a sufficient length of time to have excited by its presence, as a foreign body, a certain amount of inflammation and the development of fibro-plastic tissue, which the Doctor referred to as the agent by which the amputation was performed. Or it is possible that the presence of an additional fetus in the uterus may have had something to do with interrupting the laws determining the form in this one. These are matters of speculation.

A Peculiar Type of Fever.

Dr. T. F. PREWITT :—I have been attending some cases of fever which present a very characteristic type of fever and very rare. I think these are remarkable cases of fever in this latitude. It might be supposed they are a mild form of typhoid fever, but in these cases we do not have the high temperature found here, a temperature of 103° . It was not malaria. No one ever saw a case of remittent fever or any type of malarial fever with as high a temperature as this, without much greater functional disturbance than we have in these cases. There is a certain coated and dry tongue in malarial disease; there is a certain disturbance of the circulation; there is a loss of appetite and greater general disturbance; at least this is my experience with malarial fevers, and I have seen a great many cases. In the literature of medicine I have not seen descriptions of such cases.

Dr. HUNT asked if there was a clean, dry tongue.

Dr. PREWITT said the tongue was clean from the beginning to the end and perfectly moist. If any member had been called in and had examined the tongue, he would have said the patient had no fever, or the patient must be convalescent; and yet the thermometer in the mouth registered 103° .

In reply to a member, as to what was the function of the skin, Dr. Prewitt said there was more or less perspiration. The cases were new to him; he did not know where to place them. He thought that the high temperature might lead to complications that might prove fatal, and in one case the patient did die from a relapse and from the preceding high temperature. They generally bore quinine admirably, but without much apparent benefit.

OCTOBER 18, 1879.

Dr. F. J. LUTZ exhibited a large tumor. The patient at his death was 49 years old. He came under my observation two years ago, and related his history, dating back to an injury four years before his admission to the hospital, which would make it six years ago. He said he had an injury over the hip-joint from a fall. An examination showed a tumor circumscribed and immovable. It was evidently attached to the pelvis and posteriorly seemed to reach to the spinal column. There was much bulging on the right side. The veins of the abdomen and the superficial gluteal veins were dilated. There was much oedema of the right lower extremity. The growth was suspected to be connected with the hip joint. Besides these symptoms there was a distinct bruit in the growth, but not such as we hear in an an-

enrism, though this diagnosis was made by some physicians who saw the patient. Nothing was attempted in the way of operative interference, but it was treated by local applications and liniment. The edema of the right foot was immense. I will say in parenthesis he could never lie down on his back. At the post mortem I took out the growth and found it attached to the last lumbar vertebra and bent anteriorly, or rather the anterior bony portion of the ileum was firmly attached to the tumor. The tumor weighs eight and a half pounds, and it is an osteosarcoma, which had its origin perhaps in the injury. The neck of the femur is not involved, the pubic bone is destroyed.

Freaks of Nature.

Dr. W. DI KINSON, in continuation of the subject discussed at the last meeting, translated passages from an ancient work in Latin, by Caspar Schott, styled "*Physica Curiosa sive Mirabilia*," and published in the year 1677. "A nation of cannibals occupy the southern portion of Ethiopia, who live on the flesh of panthers and lions alone, and have but a single eye. One of these men was brought to Rome, having been captured in the vast deserts of Egypt and exhibited on account of his wonderful appearance."

St. Augustine testifies that he saw men in Ethiopia, each having a single eye in the breast. He says, "While I was bishop at Hippo and on my way to Ethiopia with other servants of Christ, for the purpose of preaching the Gospel of our Lord, we saw there many men and women who had no heads, but had large eyes situated in their breasts, but in all other respects had limbs like ourselves."

Pliny says that "In a certain valley in Syria there is a race of men whose feet are turned in a contrary direction, compared with ordinary feet, i. e., the feet were turned backward, but who exhibit a great activity of movement. Some of these have but a single eye." Also, in the mountains there are men whose feet are turned backward, and who have eight toes on each foot.

Otesias Gnidins records that Roxanes, wife of Cambyzes, King of the Persians, gave birth to a boy without a head, which prodigy was by the magi considered prophetic and signified that no one of that family should succeed Cambyzes to the Kingdom.

Aldrovandus cites a case in which an excrescence appeared in the neck, and ears were seen above the scapulae, eyes in the back and nose large as a proboscis. In other respects the body, that of a female, was of normal development.

In the year 1854 a monster was seen whose head was a shapeless mass; the face was covered with hair like that of a cat, from which, glistening, shining eyes, appeared. The mouth was extremely contracted and destitute of lips. The nose was very small and was attached to the neck. The right arm grew from the side, the other from the site of the left ear. It was possessed

of no well defined sex, nor was it a hermaphrodite. It was born dead, although alive till within a short period before birth.

Aldrovandus makes mention of a boy born at Venice in 1487, who had a penis attached to the top of his head; on account of which deformity the parents, being much chagrined, had not the courage to bring him into public. He also mentions a boy, born in his own time in Modena, with testicles and scrotum full of urine, attached to the occiput. Another boy, born at Bologna in 1630, he describes as having a mass of flesh in his forehead, similar to the appearance of a horn; he had but one orbit and one eye, and was destitute of nose; the opening of his mouth was round, but so small that it could not receive the nipples of his nurse, and milk was administered through a small reed inserted in his mouth.

Lyrosthene reports another case of a boy born in Colmaria, from whose breast another child of perfect form and of male sex, grew, free in all its limbs, and hung down even to the knees, the head alone being planted (*infixo*) in the body of the other. Also of a man of adult years seen in Germany in 1516, from whose umbilicus a head protruded, with a mouth capable of receiving food as the other.

DISCUSSION.

DR. A. GREEN said, that for one, he did not believe such nonsense. Monstrous children were born without heads, but that they grew and lived without heads, and performed their functions, he did not believe.

DR. MAUGHS said: The thanks of the Society are due Dr. Dickinson, for furnishing so curious a book, published in Latin, in the early history of printing, and containing a resume of what was known or believed in that day. The quotation from St. Augustine is sufficient to show the credulity that prevailed in that age. It is possible for monstrosities to occur as the result of segmentation, in which there is an effort to imitate what occurs in the lower orders of creation. These instances seem to be without law; but really there is nothing monstrous about them. When we are shown a monster we can at once classify it, and assign the laws that govern its formation. Some occur by pressure, and where there is difficulty in parturition; and they generally perish in child-birth. Nature usually produces expulsion of the fetus before the accoucher finds out what is the cause of the difficulty.

DR. W. JOHNSTON: It is known that the female furnishes the ovum and the male the sperm. The conjunction of these two organisms develops a third organism under specific vital laws. When a perfect ovum is furnished by the female and perfect sperm by the male, under the laws alluded to we will have a

perfect organism growing out of these elements. But if in the cells composing the ovum there be an abnormal activity, and the sperm be deficient in activity, though it may impregnate the ovum, yet you may have a variation in the development growing out of it, as in the second kind of monster presented here. I am inclined to believe that there was an undue fibrous development.

Dr. A. GREEN said that about ten years ago he delivered a child that was without upper and lower extremities, but was perfectly developed in other respects. It was born dead.

DR. KINGSLEY :—I think it is pretty well understood at the present time that the impressions of the mother on the fœtus do exert an influence. I think that was noted two thousand years ago. I think Jacob understood that matter pretty well, as we all know by reference to the 30th chapter of Genesis. We read that when the cattle went down and they saw the striped poles they started back, and yet they were compelled to drink or suffer. They drank of water and the impression produced spotted cattle, notwithstanding the fact that Satan had been careful to remove spotted cattle. The ancients understood this influence, and were in the habit of placing beautiful statuary in the rooms of their women, so that they might bear beautiful children. Frequent instances are recorded in medical literature. A beggar was on the street. She held out her hand, which had lost the thumb and a finger, and asked a woman in God's name to give her some money. The woman passed by, and paid no attention. She was pregnant at the time. It had occurred to her that the woman had asked in God's name, and been refused. She went to look for her but the woman was gone. The child was born with the thumb and finger on the same hand absent. We are forced to the conclusion that mental impressions on the part of the mother do exert an influence.

DR. C. H. HUGHES :—I do not suppose that any one can doubt the possibility of the transmission of deformities through maternal influences. When we consider the influence exerted over the vaso-motor system, through psychical influence alone, when we recollect the pallid face of fear and suffused countenance of anger; when we recollect all the varied mutations which take place through psychical impression, transmitted through the sympathetic nerves, it is not strange that abnormal arrests of development should occur. The mere fact that we cannot specifically account for the particular *modus operandi* of the changes should not make us sceptical as to the possibility of their recurrence. In the history of scientific observation facts have been seen indubitably long before the explanation of those facts has been found. I have long ceased to be skeptical in regard to

the possibility, not only of maternal impressions producing physiological changes, arresting normal development, impeding the growth of the fœtus, retarding its progress towards maturity in utero, but also of their producing monstrosities.

It is not necessary to restrict ourselves to a single explanation of this phenomena. The question in the minds of medical men is whether it is possible for maternal impressions, the emotions and feelings of the mother, to ultimate in the production of deformed fœtus, and it seems to me, in the light of all the observations which have been made, that the possibility can hardly be doubted.

DR. MAUGHS did not believe that a maternal impression had to be a strong one in order to affect the development of the fœtus; it had to be a persistent one, and to be made at an early period of gestation. An impression may have produced disease of the skin, and this disease produced the deformity.

There is a case here in St. Louis, in which a mother, at an early period saw one of those deformed beings that crawl about the streets on all fours, armless and legless. She thought of it and talked of it during pregnancy. When the child was born it was a frightful monster, so hideous that it was not shown to the mother for some time. It was with a fearful dread that she again found herself pregnant. In a premature labor, another fœtus, analogous to the first one was produced, a wretched, deformed monster, so hideous, and so like the thing she saw on the street, that no one could doubt the existence of cause and effect. The mother is now past the child-bearing period. The couple have no children, and they thank God they have none, because of the horrible result of the first impressions referred to.

While these things are so, I have no difficulty in accounting for the existence of monsters, in a great number of cases, according to laws that apply equally well to the vegetable kingdom; it leaves the possibility for a large number to be produced by psychical impressions, by maternal impressions. The ancients surrounded their pregnant women with paintings and statuary.

The mother of James the first was horrified at the sight of a sword. During all his life James was horrified at a naked sword; he could not look on it, and did not permit any guard to unsheath his sword.

I knew a woman, who during pregnancy could not bear to taste an apple, and her daughter is not able to partake of that fruit. Another woman during pregnancy did not drink milk, and her child never tastes of milk. I am speaking now of peculiarities; these mothers did not dislike an apple or milk at other times; it happened during pregnancy. My mother was frightened by an epileptic while pregnant with myself, and there is nothing under heaven I dislike so much to see as an individual in epilepsy. No money would force me to attend it. I do not

know any reason why I should have a particular dread of looking on an epileptic, except that my mother was frightened in this way by a distant cousin. So, while it is a rare thing fortunately, I have possible doubt about its occasionally being the cause of monstrosities—that the impressions of the mother so modify the nutrition of the infant as to produce monstrosities.

Dr. HUGHES:—There is another fact concerning the possibility of mental impressions. I think it is a fact generally admitted, that a widow may marry again, a widow who has been devotedly attached to her first husband, and the subsequent offspring bear the impression of the first husband. He wished to refer to the acknowledged possibility of physiological processes being modified through impressions primarily made on the brain. These were sufficient to justify them in admitting the supposed possibility of these things being produced by mental impressions. The time had gone by when they were laughed at as the superstitions of a former age; they are possible in the light of physiological fact and pathological demonstration, now. If mental impressions may paralyze the heart or stop its beating, if they may arrest digestion, if they may act on all the secretions of the body as wholly physical processes, why may they not affect those nutritive changes which take place in the fetus and which are dependent on the organization and mental condition of the mother, so as to arrest the development of the child? It is a question whether, in the majority of cases brought to our attention, the result is in exact accordance with physical formation, or with mental impressions made in the mother. I confess I never saw such a thing, but thought it might be traceable to events in the history of the mother, events external to her, and they resulted in a change in the fetus, transmitted by the mind of the mother.

Dr. SCOTT said that he believed that impressions made on the mother produce a fac-simile. He would mention a case that had come under his observation. It might be remembered that there used to be an old woman on Pine street, who gained a living by begging. She wore a blanket over her face, and was called the "frog-faced woman." It was as near the shape of a frog as it was possible for a woman's face to be. A patient of his (the speaker's) had borne three or four fine children, living to day. The lady went to Lucas market, and in winter the doors are closed, but there is a small door by which ingress and egress is made. The lady stepped to the door, put her hand on it, when it was pushed from the inside, and the frog-faced woman stood before her. She had the blanket partly removed. His patient fainted, and was taken to a drug store. She was in the early stage of pregnancy, and the result was that the child was well formed, all except the head, which was a perfect bull frog—a fac-simile of the frog faced woman. It was fortunately born dead. He witnessed that case himself.

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THE REGULAR SESSION will begin on Wednesday, October 1, 1879, and end about the 1st of March, 1880. During this Session in addition to four didactic lectures on every week-day except Saturday, two or three hours are daily allotted to clinical instruction.

THE SPRING SESSION consists chiefly of recitations from text books. This Session begins on the 1st of March and continues until the 1st of June. During this Session, daily recitations in all the departments are held by a corps of examiners appointed by the Faculty. Short courses of lectures are given on special subjects, and regular clinics are held in the Hospital and in the College building.

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PROSPECTUS OF REPORTS
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A REPORT OF THE COMMITTEE APPOINTED BY THE ST. LOUIS MEDICAL
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FEVER EPIDEMIC OF 1878 TO THE CITY OF ST. LOUIS,"

AND

A REPORT BY THE CHAIRMAN OF THE ABOVE COMMITTEE, DR. W. HUTSON
FORD, OF ST. LOUIS, ON THE "METEOROLOGICAL CONDITIONS AND
ETIOLOGY OF YELLOW FEVER," AND OF CERTAIN OTHER
DISEASES ASSOCIATED WITH A HIGH TEMPERATURE,
AND THE TREATMENT OF YELLOW FEVER.

Revised by the Committee on Publication.

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Section I.—A detail of all the cases of fever occurring in St. Louis, which were developed in persons coming to that city from the South.

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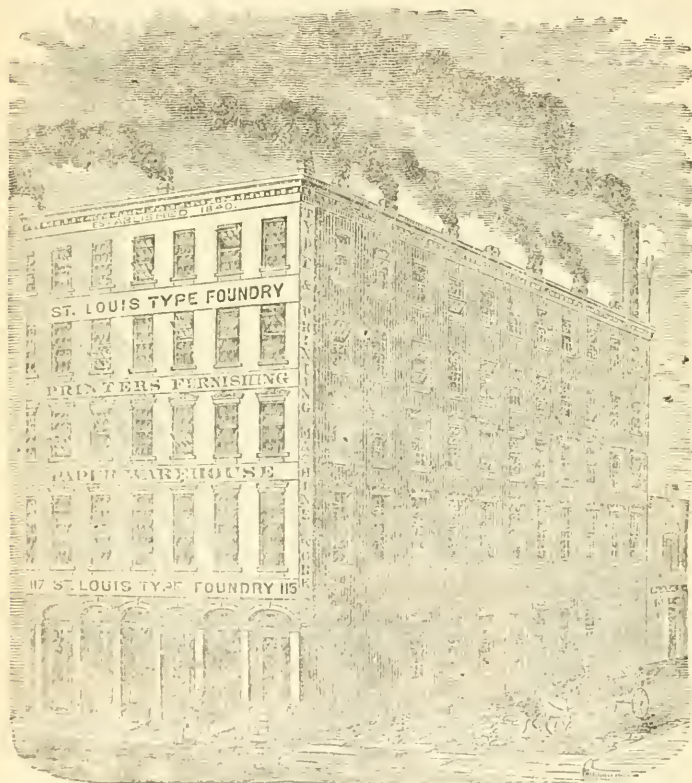
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